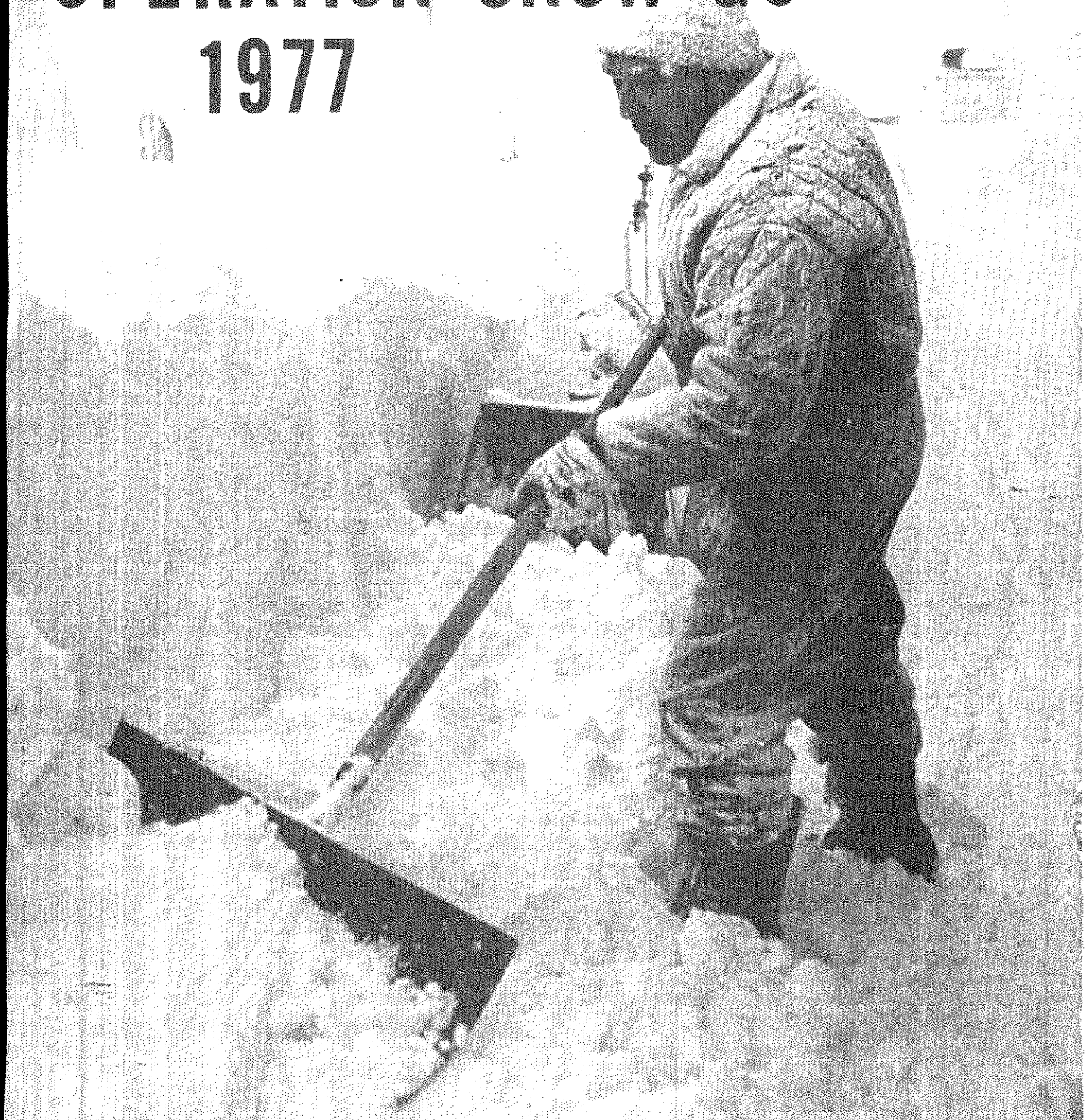
POST-STORM REPORT
NINE COUNTIES IN NEW YORK STATE
OPERATION SNOW GO
1977



U. S. ARMY ENGINEER DISTRICT, BUFFALO

JUNE 1977

FEB 19 1977

U. S. ARMY ENGINEER DISTRICT, BUFFALO
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

NEW YORK STATE

BLIZZARD OF 77

Cover Photo - This Watertown, New York, resident mirrors the seriousness of the 65 inches of snow that fell within four days. (1/31/77 W.D.T.)

BUFFALO EVENING NEWS City Final

Blizzard Deals Area Another Jolt

Courier EXPRESS

Carey Calls State Fuel Emergency

TV Topics • Pause • News Magazine • Color Comics

BUFFALO EVENING NEWS Storm Special

Blizzard Paralyzes WNY, Kills 7, Strands Thousands

Courier EXPRESS

Savage Winter Storm Paralyzes W N Y

U.S. Moving In to Help Area Dig Out

Watertown Daily Times

U.S. Aid Sought as Snow Piles Up

Impact *Features a Talk With Author of Roots, Page 19*

BUFFALO EVENING NEWS Storm Special

Area Staggering to Its Feet

Courier EXPRESS

Good Morning

U.S.-Led Cleanup in Full Force

Carey Here . . . Asks 'Major Disaster' Tag

Volunteer Web Delivers Food

Courier EXPRESS

WINTER'S GRIP ON AREA TO EASE

BUFFALO EVENING NEWS Storm Special

Mayor Bans Driving in City

THE JOURNAL-REGISTER

Hit By The 'Big Blizzard' of '77

Watertown Daily Times

Blizzard Socks County; 3 Die

Aid Being Rushed to Stranded

Courier EXPRESS

Storm Relaxes Stranglehold on Area

BUFFALO EVENING NEWS Storm Special

WNY Gets $3 Million for Cleanup

Courier EXPRESS

Carter Prepares Major Disaster Status

Good Morning

Aide Informs Nowak: Door Open for Funds

Courier EXPRESS

Makowski Reimposes Ban on Traffic

Says Jamaqua Force Action

FRONTISPIECE

BUFFALO EVENING NEWS Storm Special

Renewed Driving Ban Stills City

TV Topics · Pause · News Magazine · Cafe

BUFFALO EVENING NEWS Storm Special

Disaster Aid for Area Spelled Out

Courier EXPRESS

Carter Orders Disaster Aid for W N Y

Millions in U. S. Funds

Impact — *The Man Behind the Mask on Time's Cover* Pg 19

BUFFALO EVENING NEWS City Final

Storm-Recovery Outlook Brightens

Carey Orders National Guard to Aid Niagara County

Courier EXPRESS

Good Morning **Makowski Extends Driving Ban**

GM Puts Profit for 1976 at Record $2.9 Billion

Courier EXPRESS

IT'S OK TO DRIVE—3 TO A CAR

Makowski Lifts Ban But Imposes Some Restrictions

Snow Fighters Glimpse 'Some Sort of Normalcy'

BUFFALO EVENING NEWS Storm Special

Traffic 'Disaster' Jams Roads

Gas Supply From Texas Eases Crisis Here

150 City Buses Are Pulled Off Snarled Routes

Courier EXPRESS

3 Local Firms to Direct Snow Cleanup

Courier EXPRESS

Snow Part Cost Could Be $15 Million

Good

BUFFALO EVENING NEWS City Final

U. S. Assures City of Snow Funds

BUFFALO EVENING NEWS City Final

Mayor Lifts 3-to-Car Driving Rule

Courier EXPRESS

Thousands Seek Disaster Food Stamps

Father Slain, Mother Knifed, Cops Hunt Son

BUFFALO EVENING NEWS City Final

County Maps Flood Precautions

Week-end Peril Eases, Talks Set For Key Towns

Applicants Deluge Food-Stamp Centers

FRONTISPIECE

ACKNOWLEDGMENTS

This report was developed through efforts of many persons in the Buffalo District Office of the Corps of Engineers who either prepared portions of the report or contributed their views on experiences and events that transpired during the course of the snow emergency. Those persons who significantly contributed to the report content and its preparation are listed below.

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Efforts of other Corps of Engineer personnel who participated in the preparation of this report in such ways as: review, photographic preparation, report production, reproduction and distribution are gratefully acknowledged. Appreciation is also extended to other governmental agencies and the news media for their willingness to furnish much of the data and photographs used in this report.

SUMMARY

On Friday, 28 January 1977, at about 11:00 a.m., storm-battered Western New York State was hit with perhaps the worst winter storm in its history. The temperature hovered below 10 degrees Fahrenheit. Heavy snow and fierce winds, gusting to 70 miles per hour, reduced visibility to zero. In Northern New York State, the winter storm began about 3:30 p.m. on 28 January with winds gusting from 50 to 65 miles per hour.

By Friday night thousands of people were stranded in office buildings, schools, police stations, fire halls, and factories. Most highways were impassable; train lines were blocked, and the Buffalo International Airport was closed. The Western and Northern New York State areas were paralyzed as the storm continued through the night.

On Saturday, 29 January 1977, President Jimmy Carter issued a "declaration of emergency" for four Western New York State counties, permitting Government agencies to move in and help with rescue efforts under the authority of the Federal Disaster Assistance Administration. Later, five additional counties, including two Northern New York State counties, were added.

Working side by side with Army and National Guard troops, the Red Cross, the Salvation Army, local police and firemen, and scores of volunteers, the U.S. Army Corps of Engineers, Buffalo District, accomplished its assigned portion in the massive snow removal effort. The Buffalo District Corps office gave the name, "Operation Snow Go 1977" to its assigned task for it exactly described its mission. A total of 353 Corps of Engineers personnel took part in the emergency operations, many of them working 12 to 16-hour shifts under extremely adverse weather conditions.

Two-hundred sixteen contractors were hired by the Corps of Engineers to clear snow from approximately 3,186 miles of road in nine counties: Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans, and Wyoming Counties in Western New York State, and Jefferson and Lewis Counties in Northern New York State. Almost 1,000 pieces of contractor's equipment were mobilized.

National attention focused on the disaster and on Saturday, 5 February 1977, President Carter declared the nine counties a "major disaster area" — the first such declaration ever made for a snow emergency. This designation opened the way for more extensive Federal relief, including direct reimbursement to local Governments for snow removal expenses. The cities and counties took over the contracting of new snow removal jobs while the Corps of Engineers completed its contracts in progress. The total cost of the Corps of Engineers emergency work accomplished by contractors was $6.8 million, while their inhouse charges totaled $0.7 million.

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Buffalo Evening News	B.E.N.
Courier Express	C.E.
U. S. Army Corps of Engineers	Corps
N.Y.S. Dept. of Transportation	D.O.T.
The Associated Press	A.P.
Watertown Daily Times	W.D.T.

Photo	Description of Photograph	Following Page	Credit
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Frontispiece	Newspaper Headlines		Corps
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2	Volunteer firemen digging out a home in Depew, NY	4	B.E.N.
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Section I - AUTHORITY, PURPOSE AND SCOPE

AUTHORITY

This report describes Buffalo District's "Operation Snow-Go" during the Great Blizzard of 1977. It has been prepared under the authority of PL 93-288 as requested by the Federal Disaster Assistance Administration (FDAA).

Specific authority for Corps participation in emergency operations was provided by FDAA letter to U. S. Army Corps of Engineers, North Central Division Engineer dated 29 January 1977. The letter refers to provisions of Public Law 288, 93rd Congress as amended; Executive Order 11795; Title 24, Code of Federal Regulations, Chapter XIII Part 2201 and 2205.

PURPOSE AND SCOPE

The purpose of this report is to provide a reference for information related to the snow removal procedures during the 1977 snow storms in Western and Northern New York State. It will be helpful for planning purposes in future emergencies.

This report presents a description of the snow storms, emergency activities, the impact of the storms, coordination with other agencies, Corps of Engineers contracts, and a critique of the emergency operations.

Section II - DESCRIPTION OF THE SNOW STORM

GENERAL

Pre-Blizzard Conditions

January 1977 will long be remembered as the worst winter month since weather records, compiled at Buffalo International Airport in Cheektowaga, NY, began in 1870 (airport shown near center of Plate 7). Residents of Western New York State found themselves continually fighting the weather elements throughout the month. They fought to keep highways open, keep industry and other services operating, and to keep their own homes somewhat near comfortable. As the month progressed, weather record after record fell to the fury of winter.

Over a foot of snow fell over the Buffalo area on the 10th of January. The snow was accompanied by wind gusting to 59 miles per hour, resulting in blizzard conditions.

On Wednesday, 26 January 1977, Western New York State struggled to clear roads of the effects of the 29 inches of snow on the ground which had been accumulating during the winter. The city of Buffalo's side streets were practically impassable and more snow was forecast. At 10:30 p.m., snow squalls and high winds swept across Wyoming, Cattaraugus, Allegany, and Erie Counties. After midnight, winds up to 54 miles per hour reduced visibility to zero and the Buffalo Skyway bridge, Fuhrmann Blvd., and the Father Baker bridge in the city of Buffalo were closed to all traffic. (Plate 4). During the night a number of motorists stranded on Fuhrmann Blvd. were rescued by police and fire fighters (photograph 1 shows this area as it appears on 2/2/77). Many other roads and highways were closed. A number of schools and factories along with the Buffalo Airport were closed due to the poor visibility and hazardous travel conditions.

Photo 1 - View looking north toward Buffalo, New York. Approximately 100 cars and trucks were still stuck in the snow on Fuhrmann Boulevard along the shore of Lake Erie about four days after the blizzard hit. (2/2/77 Corps)

All Western New York State counties were nearly paralyzed by the storm, particularly Erie, Niagara, and Genesee. The 26 January snowfall on top of the existing snow cover caused Buffalo's already weary snow-fighting crews to lose more ground in the fight to clear the city. These conditions, along with Buffalo Mayor Makowski's desperate pleas, caused Governor Hugh L. Carey on 27 January to order National Guard and State Department of Transportation snow fighting equipment into Buffalo.

The Blizzard

The National Weather Service Office located at the Greater Buffalo International Airport in the town of Cheektowaga described the 28 January storm as a rapidly developing low pressure system, moving eastward just north of the lower Lakes Region, leaving Western New York in a very strong flow of cold Arctic air. As the associated cold front moved across the area, blizzard conditions arrived suddenly and completely paralyzed the area. At 5:00 a.m. the forecast indicated near blizzard conditions late in the afternoon and evening. Six hours later at 11:00 a.m., the forecast was updated to blizzard warnings. As the words of this message appeared on the Weather Service's teletype, Western New York State began receiving the most severe winter storm in its history. Officially, visibility dropped to zero and remained there from 11:30 a.m. on the 28th until 12:50 a.m. on the 29th. The storm did not subside until 1 February. Wind gusts over 50 miles per hour occurred each day, with a peak of 69 miles per hour on the 28th. Zero visibility, white-outs, bitter cold air with wind chill effects to more than 50° F. below zero, and unbelievably deep snow drifts virtually paralyzed Buffalo and much of Western New York State. The blizzard raged savagely through the region for 17 hours before it eased slightly. It was almost four days later before the winds abated and the drifting, blowing snow settled down and the hazard of near-zero visibility disappeared.

The blizzard, which started on the 28th, resulted in thousands of people being stranded in office buildings, schools, police stations, fire halls, and factories. Approximately 60 Corps employees along with officials from Albany and Cheektowaga were stranded in the Buffalo District office, some for two days. Nearly all transportation in and out of Buffalo stopped, with most major highways officially closed or virtually impassable, train lines blocked, and the Buffalo International Airport closed. The whole area was paralyzed as the storm continued.

Snowdrifts over 25 feet high were reported, resulting in some buildings and thousands of cars being buried as shown in photographs 2 and 3. Numerous roads and highways remained closed for over a week as drifts were too high and the wind packed snow too tight for normal snow removal equipment. As a result, front end loaders and other earth moving equipment were utilized. The measured snowfall during the four-day blizzard at the Buffalo Airport was 9.2 inches. The excessively high drifts resulted from the snow pack that had been accumulating since late November. With little thawing and freezing during abnormally cold January the snow did not consolidate and the old snow was free to drift under the high winds along with the new blizzard snow.

As the blizzard conditions subsided, the city of Buffalo lay buried under three and a half feet of snow. The hustle and bustle of the downtown area was uncommonly quiet, looking almost eerie, like that of an unknown planet. As shown in photograph 4, the city looked as if the more than 400,000 people had been evacuated. As the blizzard's fury eased, people began to travel on foot to nearby grocery stores (photograph 5). Throughout the blizzard stricken area, many office buildings were empty. Businesses that never close were closed. Stores were running out of milk and bread and, as a result of the order to conserve on fuel by cutting heat back, many water pipes froze.

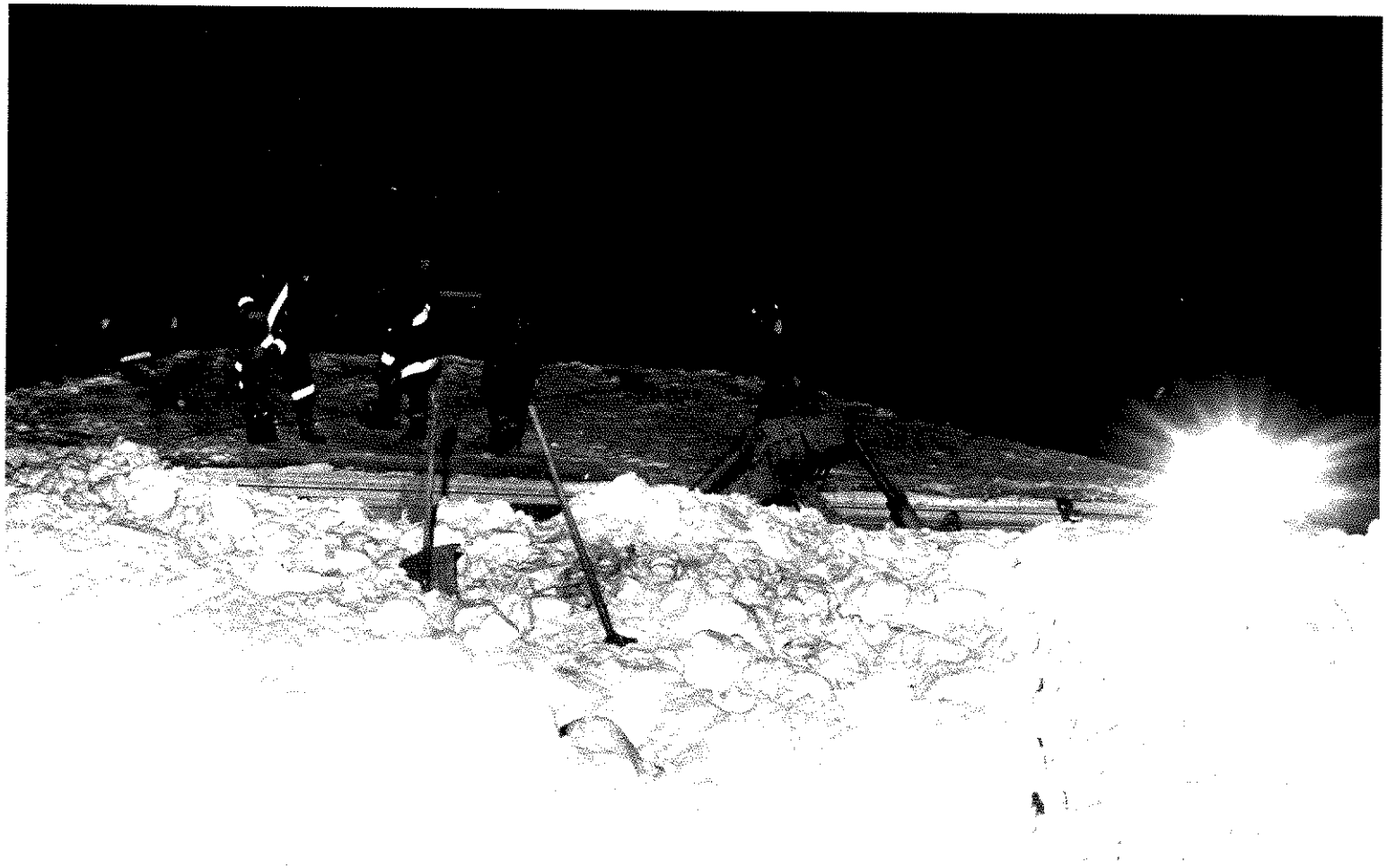


Photo 2 - Volunteer firemen with the aid of a trenching machine attempt to reach a Depew home covered with snow. Depew is a village located just east of Buffalo. (2/2/77 B.E.N.)

Photo 3 - A very common scene facing the Corps of Engineers, its contractors and others each time a new street had to be cleared. This photograph depicts the many problems confronting snow removal crews. (1/77 B.E.N.)

Photo 4 - Scene of downtown Buffalo. City seems abandoned as Mayor's ban on "nonessential" traffic continued. Helicopters were utilized to expedite travel of high ranking officials. (2/2/77 B.E.N.)

Photo 5 - Normally Niagara Street in Buffalo is heavily traveled by vehicluar traffic, but during the Mayor's ban on "nonessential" traffic in Buffalo, this street like so many others became a pedestrian mall. The Military Police shown in the right foreground helped enforce the Mayor's proclamation. (2/2/77 B.E.N.)

In Northern New York, reports from the Watertown International Airport indicated that five inches of snow fell on 27 January and another five inches by morning of the 28th. Weather maps received at Watertown indicated a deep low pressure area moving toward the James Bay region of Canada, with a cold front trailing southwest from it into the Ohio and Mississippi River valley areas. The forecast indicated the front, accompanied by strong winds, would impact Watertown at approximately 3:00 p.m. local time. This forecast was passed on to many schools and businesses as well as authorities in the area. A 3:10 p.m. weather update indicated zero visibility and wind gusting to 28 miles per hour. As the storm raged, a peak wind velocity of 49 miles per hour was recorded at 7:00 p.m. When it stopped snowing about 9:20 p.m., ten inches of snow had fallen since midnight. At 2:30 a.m. on the 29th of January, the storm began again. The strong winds, up to 50 miles per hour, and heavy snowfall continued to 10:00 p.m. There was a short respite until 2:00 p.m. on the 30th when visibility again returned to zero. By midnight, 34 inches had fallen since 7:00 a.m. of the 28th. January 31 was a day of complete blizzard, accumulating an additional 17 inches of snow. It finally stopped snowing about 8:00 a.m. on 1 February. The five-day blizzard dropped about five feet of snow and literally buried Jefferson and Lewis Counties.

The people in Northern New York State, as in Western New York State, were caught off guard. People were stranded in office buildings, motels, and restaurants. Food and supplies ran short; their normal snow removal equipment was grossly incapable of coping with drifts of the magnitude shown in photograph 6. Problems were magnified by the hundreds of transients that were stranded in the Watertown area. As a matter of fact, it became such a problem when food and other supplies grew short that the driving ban was lifted and a special convoy was organized to lead transients from the area to continue to their destinations. Another

Photo 6 - These were not uncommon sights in many rural areas. These drifts located in Tylersville, Jefferson County, NY were "only" 18 feet high. In some areas they measured 25 feet. (2/3/77 W.D.T.)

problem that severely hit the northern counties was the inability of the farmers to get their milk to market, resulting in economic losses of millions of dollars.

Storm Related Deaths

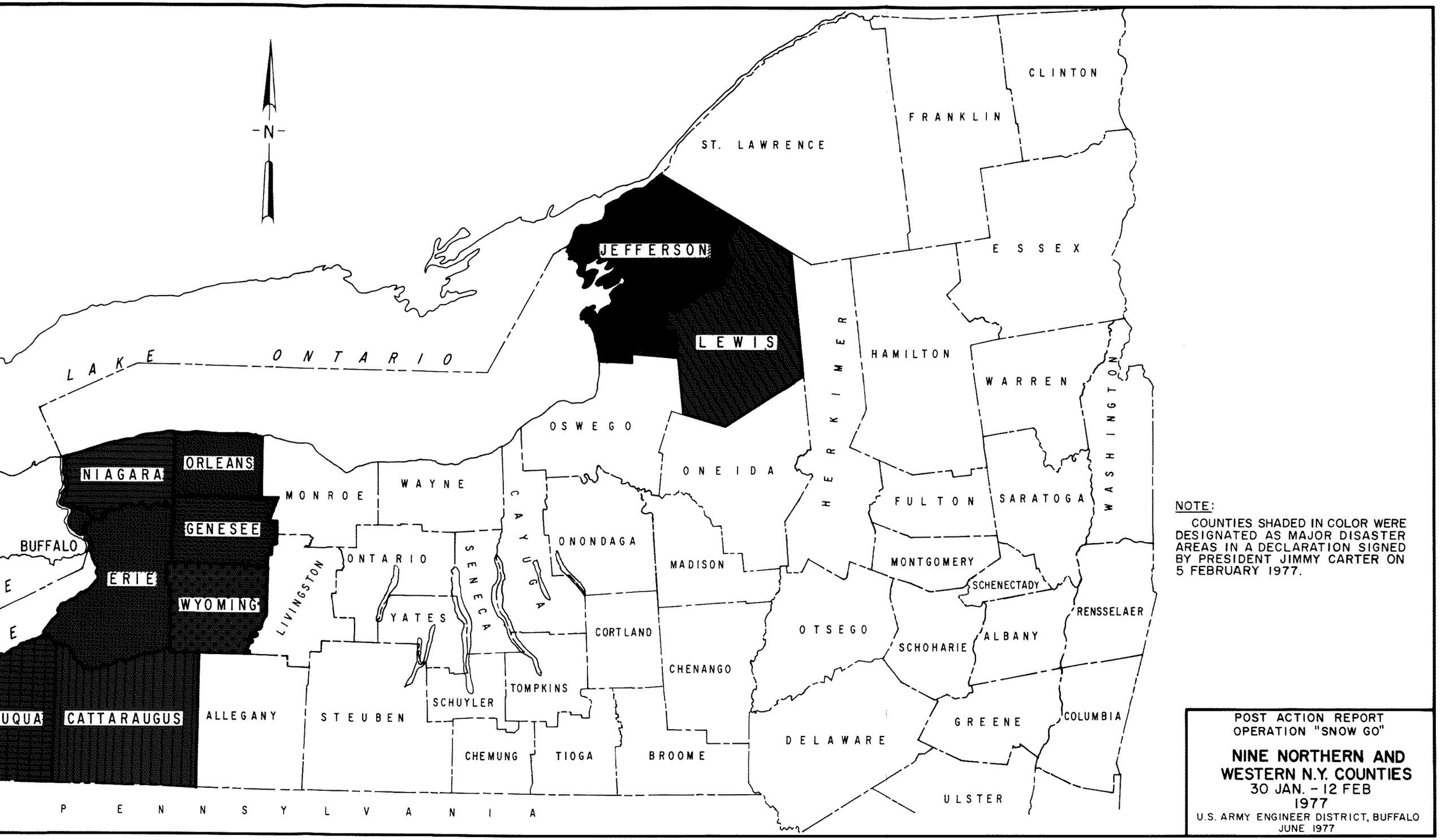
The storm took a heavy toll of lives in Western New York State with a total of 23 storm-related deaths reported. Of these, 18 were in Erie County, which included 11 in the city of Buffalo. Elsewhere, the storm claimed three lives in Wyoming County, one in Niagara County, and one in Orleans County. At least nine people were found in their buried automobiles. It was a grueling task to check hundreds of automobiles (photograph 7). Other deaths were attributable to heart attacks while shoveling snow, and storm related vehicle accidents.

Death also visited the northern counties during the blizzard. Four men died of heart attacks while shoveling snow and another died of a heart attack in his car.

Areas Affected by Storm

The seven adjoining counties located in Western New York and the two Northern NY counties, designated as major disaster areas, are shown in red on Plate 1. The Western NY counties are Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans and Wyoming. The Northern NY counties are Jefferson and Lewis.

Photo 7 - Red Cross volunteers, traveling by snowmobile, check for trapped passengers in vehicles such as the one shown above. Nine bodies were found frozen to death during and shortly after the blizzard. A total of 23 deaths were attributed to the blizzard in Buffalo and its vicinity. (2/2/77 Robert L. Smith)



NOTE:

COUNTIES SHADED IN COLOR WERE DESIGNATED AS MAJOR DISASTER AREAS IN A DECLARATION SIGNED BY PRESIDENT JIMMY CARTER ON 5 FEBRUARY 1977.

POST ACTION REPORT
OPERATION "SNOW GO"

NINE NORTHERN AND WESTERN N.Y. COUNTIES
30 JAN. - 12 FEB
1977

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 1

Section III - EMERGENCY ASSISTANCE ACTIVITIES

EMERGENCY DECLARATION AND DIRECTIVES

Federal - On Friday, 28 January 1977, New York State Governor Hugh L. Carey asked President Carter to designate parts of New York State as a major disaster area. President Carter responded on 29 January 1977 by making a declaration of an "Emergency" for all of New York and Pennsylvania. In New York State this action provided direct Federal assistance in snow removal operations for the counties of Cattaraugus, Chautauqua, Erie, and Niagara.

President Carter appointed Mr. Thomas Casey, FDAA Region II Director, as the Federal Coordinating Officer (FCO).

Newspapers reported that on 29 January 1977, President Carter considered flying to Buffalo for a first-hand look at the blizzard stricken area. However, due to high winds in Buffalo, his airplane flew to Pittsburgh on 30 January to view the situation there.

On Monday, 31 January, Governor Carey requested the addition of Orleans, Genesee, Wyoming, Jefferson, and Lewis Counties to the Federal disaster emergency declaration.

On Tuesday, 1 February, after touring the areas, Mr. Casey added the five additional counties to the Emergency declaration. This was an authority he could exercise since President Carter had called New York State an emergency area during the previous weekend.

On 4 February, President Carter's son, James Earl (Chip) and Miss Margaret Costanza, special Presidential advisor, visited Buffalo, Lancaster, and Cheektowaga for four hours as a demonstration of the President's personal

concern for the upstate region. U. S. Senators Jacob K. Javits and Daniel P. Moynihan also visited the Western New York State area on 4 February. After receiving numerous requests from Western New York State Congressmen and other officials during the week, President Carter on Saturday, 5 February, made the major disaster designation for Cattaraugus, Chautauqua, Erie, Genesee, Niagara, Orleans, and Wyoming counties in Western New York State and Jefferson and Lewis counties in Northern New York State (photograph 8). It was the first time in history that a blizzard was declared the cause of a major national disaster.

Under the Presidential emergency declaration, Federal assistance was limited to snow removal operations. Upon the declaration of a major disaster, Federal assistance was expanded to include everything to protect life and property and to provide whatever materials and equipment that were required to relieve the emergency and restore the area to normalcy. A task force was established and held daily status meetings. It included, among others, representatives from the Department of Transportation, Corps of Engineers, City of Buffalo, Office of Disaster Preparedness, Salvation Army, the Red Cross, and Erie County. All Federal assistance was directed by the FCO. The basic relief provided by the major disaster declaration included direct Federal grants to help communities pay snow removal and road repair costs. The declaration obligated the Government to provide, among other things, unemployment insurance payments for people put out of work by storms beginning on 16 January; numerous loans and grants to help repair and rebuild property and business damaged by the storms; agricultural assistance; distribution of food coupons to eligible disaster victims; repair or replacement of public buildings, utilities, schools, and medical facilities.

Photo 8 - President Carter signs a disaster relief declaration for snow stricken Northern and Western New York, in the Oval Office of the White House. (2/5/77 A.P.)

Local - Many communities within the nine county area declared themselves to be under a "state of emergency." This was necessary to keep traffic off the streets and roads to allow snow removal crews to operate, to prevent people from attempting to drive under extremely hazardous conditions, and to reduce looting taking place in some areas. Driving bans imposed in Niagara Falls, Watertown, and Buffalo added to the economic problems of the local business and retail establishments.

On Tuesday, 1 February 1977, Mayor Stanley M. Makowski, of Buffalo, declared a "state of emergency" in the city, prohibiting the use of vehicles for "non-essential purposes" on all city streets. Late Wednesday, 2 February, the mayor, under much pressure from some local business and industrial leaders, lifted the ban. He had to reimpose it Friday morning, 4 February, as snow removal efforts were hampered by buses and private vehicles jamming Buffalo streets. The driving ban, which was modified during this period, was lifted in the city of Buffalo on Monday, 7 February. During much of this same time period, driving was also restricted in Niagara County and the Watertown area. In some of the cities, towns, and counties, there were large fines for unauthorized driving.

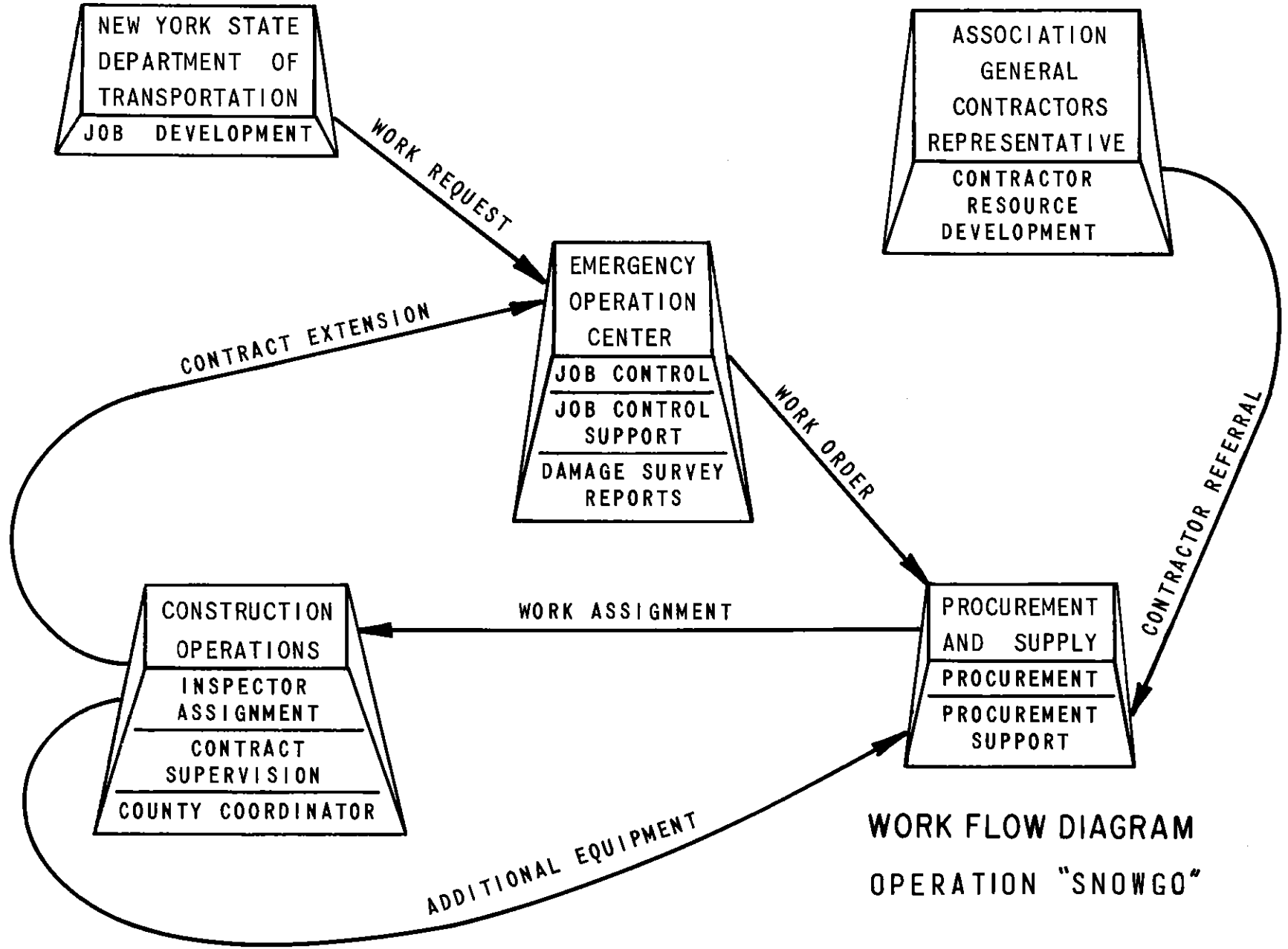
ORGANIZATION

Federal Disaster Assistance Administration (FDAA) - Mr. Thomas R. Casey, Region II Director of the FDAA from New York City, arrived in Buffalo on Sunday, 30 January 1977. He served as the Federal Coordinating Officer and organized an FDAA effort which ultimately involved dozens of private and public agencies. Mr. Casey's efforts included assigning the U. S. Army Corps of Engineers the task "To contract for and administer activities related to the emergency removal of snow." Since the majority of the area affected by the blizzard fell within the geographical boundaries

of the Buffalo District, the North Central Division assigned the project to the Buffalo office. Because President Carter's initial emergency declaration included all of New York and Pennsylvania, it was agreed that the Buffalo District would cover the Pittsburgh District area within New York State and Pittsburgh District would cover Buffalo District area within Pennsylvania. Considerable snow removal operations within Buffalo District's boundaries in the State of Ohio were handled by the Ohio River Division since Buffalo's capabilities were being utilized entirely within New York State.

Buffalo District, Corps of Engineers - Upon receiving notification of its assigned responsibilities, the Corps immediately entered into emergency operations on a 24-hour basis, 7 days per week. Due to the emergency nature of the assignment "Operation Snow Go," the fact that it was the first of its kind on such a wide scope and that Corps people were as immobilized as others in the area, an ad-hoc organization was initially established to provide immediate response to the emergency. Since the office was closed; the initial staff was very few in number. They then contacted additional staff by phone and asked them to come in. As Corps of Engineer employees arrived at the District office by whatever means they could utilize to get there, the staff built up and initial contracts were let. Corps employees received their job assignments by filling a need as it developed. After several days, the work flow diagram and organization set up as illustrated on Plates 2 and 3 evolved; however, no formal organization chart was developed. Because of the emergency situation normal District organizational structure and methods of operation were not followed. Further discussion on organization is addressed under Section IV of this report (The Lessons of Operation Snow Go 1977).

The following is a very brief review of the structure utilized by the Corps of Engineers in accomplishing its assigned mission. Many of these areas are explained in greater detail later in this report.



WORK FLOW DIAGRAM
OPERATION "SNOWGO"

PLATE 2

ORGANIZATION STRUCTURE

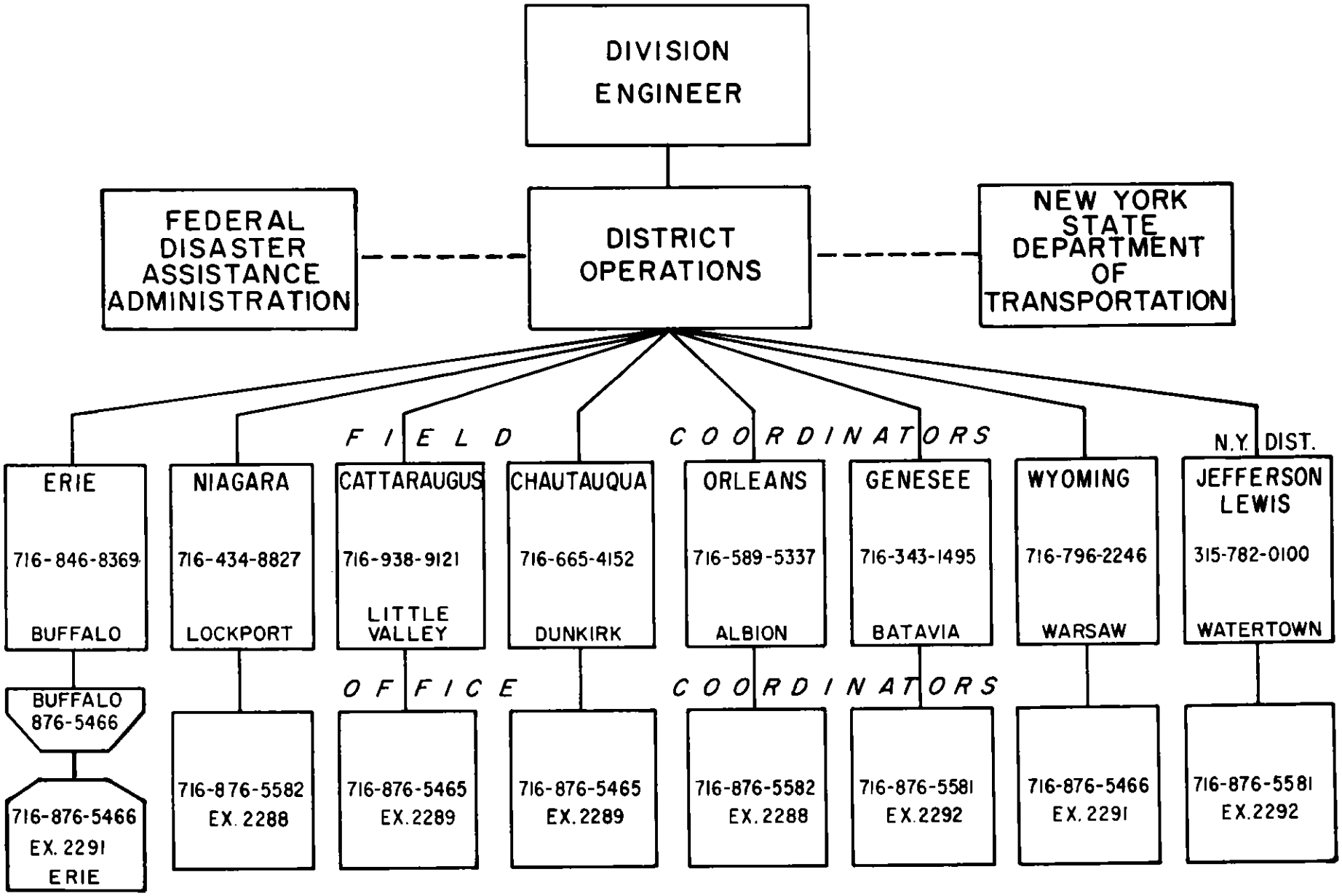


PLATE 3

Emergency Operations (EOP) - Served as liaison with FDAA, attended all meetings of the Task Force, (which consisted of Federal, State and local representatives) and was used as a resource to determine authorities under the emergency situation.

Procurement and Supply - Negotiated contracts, developed contracts, and handled contract payments.

Construction-Operations Division - Had primary responsibility for inspection, handled TDY people, and verified or negotiated final contract costs.

Engineering Division - Developed a list of contractors and equipment, contacted other areas for equipment, determined type of equipment required for job requests and matched contractor to a job, reassigned contractors after completion of original job, and prepared Damage Survey Reports.

County Coordinators - A team of County Coordinators was developed. Some coordinators operated from the District Office while others were operating in the field.

Inspectors - Because of the difficulty in transportation, a number of inspectors were assigned by telephone to contracts near their home. For this reason personnel at all grade levels and backgrounds were used as inspectors.

Emergency Operations Center (War Room) - Handled requests, telephone calls, established priorities, set up work schedules, coordination, and maintained status of the operation.

District Engineer and his Deputy - Provided overall supervision.

The response from district personnel was outstanding. Secretaries and typists managed construction equipment. Engineers and clerks alternated

on shifts performing some very vital functions of management and coordination. Only a close knit organization could have adapted to the conditions existing at the time. In spite of almost complete disregard of organizational position, the assignment was completed in a timely manner due to the total dedication of personnel involved.

Because of the large scope of emergency work to be done within the seven adjoining counties of Western New York, the responsibility for the on-site Corps of Engineers efforts in the two Northern New York Counties was assigned to the New York District. After initial contacts were made and procedures discussed in Watertown, NY, by representatives of the Buffalo District, New York District, and local officials, the New York District directed the on-site operations within Jefferson and Lewis Counties. The Buffalo office, however, maintained responsibility to FDAA for operations in these counties.

Temporary Duty (TDY) Personnel - Because the extent of "Operation Snow Go" was so tremendous and beyond the capability of the Buffalo District's normal work force, it was necessary to obtain additional temporary duty (TDY) personnel from other Corps installations. TDY personnel were furnished from the New England Division, Chicago District, Detroit District, New York District, Rock Island District, St. Paul District, the Office, Chief of Engineers, and Cleveland Resident Office of Buffalo District. They started arriving on 2 February and the last to leave the Buffalo District departed on 12 February. Because of the large number of personnel required in the field, all 18 district vehicles, 37 General Services Administration vehicles, and 49 rental vehicles, for a total of 104 vehicles, were continually in use.

A total of 353 Corps personnel, including over a dozen military officers, took part in the emergency operations. Many of them worked in the field on 12 to 16-hour shifts or more under extremely adverse weather conditions. Early in the emergency quite a number of Corps employees stayed at the office, using sleeping bags for occasional rest when the chance arose. This was due to the difficult transportation situation and the long hours needed in the contractor assignment, contract award, and war room areas. Because Construction-Operations and Engineering Division's people were all utilized, many of the District's support personnel were called on to perform unaccustomed duties. This included women performing tasks such as contracting, serving as county coordinators, and field inspectors. One welcome sight to the Corps employees during these long hours was the unfailing appearance of the Salvation Army crews each evening, offering soup, coffee, sandwiches, etc. Appendix E of this report contains the names of the Corps of Engineers employees who participated in the cleanup operations.

On 5 February, Lt. Gen. J. W. Morris, Chief of Engineers, and Brig. Gen. R. L. Moore, Division Engineer, NCD, inspected snow removal operations. They also visited and discussed cleanup operations with Buffalo Mayor Stanley M. Makowski, Erie County Executive Edward V. Regan, and the staff of the Buffalo District Corps office (photographs 9 and 10).

Other Military Assistance - Public and private crews battling the blizzard in Buffalo and suburbs were augmented by more than 900 National Guard and U. S. military troops.

Over 500 National Guard troops, some of whom were on site the day the blizzard hit because they had been activated by the Governor of New York State due to previous snow accumulations, provided snow removal assistance, and military police and medical personnel (photograph 11). The National Guard also provided helicopter support. They operated under the direction of N.Y.S. Dept. of Transportation and the City of Buffalo.

Photo 9 - Army Corps of Engineers Officers (left to right), COL D. D. Ludwig, Buffalo District Engineer; Lt Gen J. W. Morris, Chief of Engineers; and Brig Gen R. L. Moore, North Central Division Engineer, make an onsite inspection of cleanup operations. They toured areas being cleared by military personnel as well as civilian contractors. (2/5/77 Corps)

Photo 10 - Lt Gen J. W. Morris, Brig Gen R. L. Moore, and staff members met with Buffalo's Mayor Stanley Makowski to discuss cleanup operations. (2/5/77 Corps)

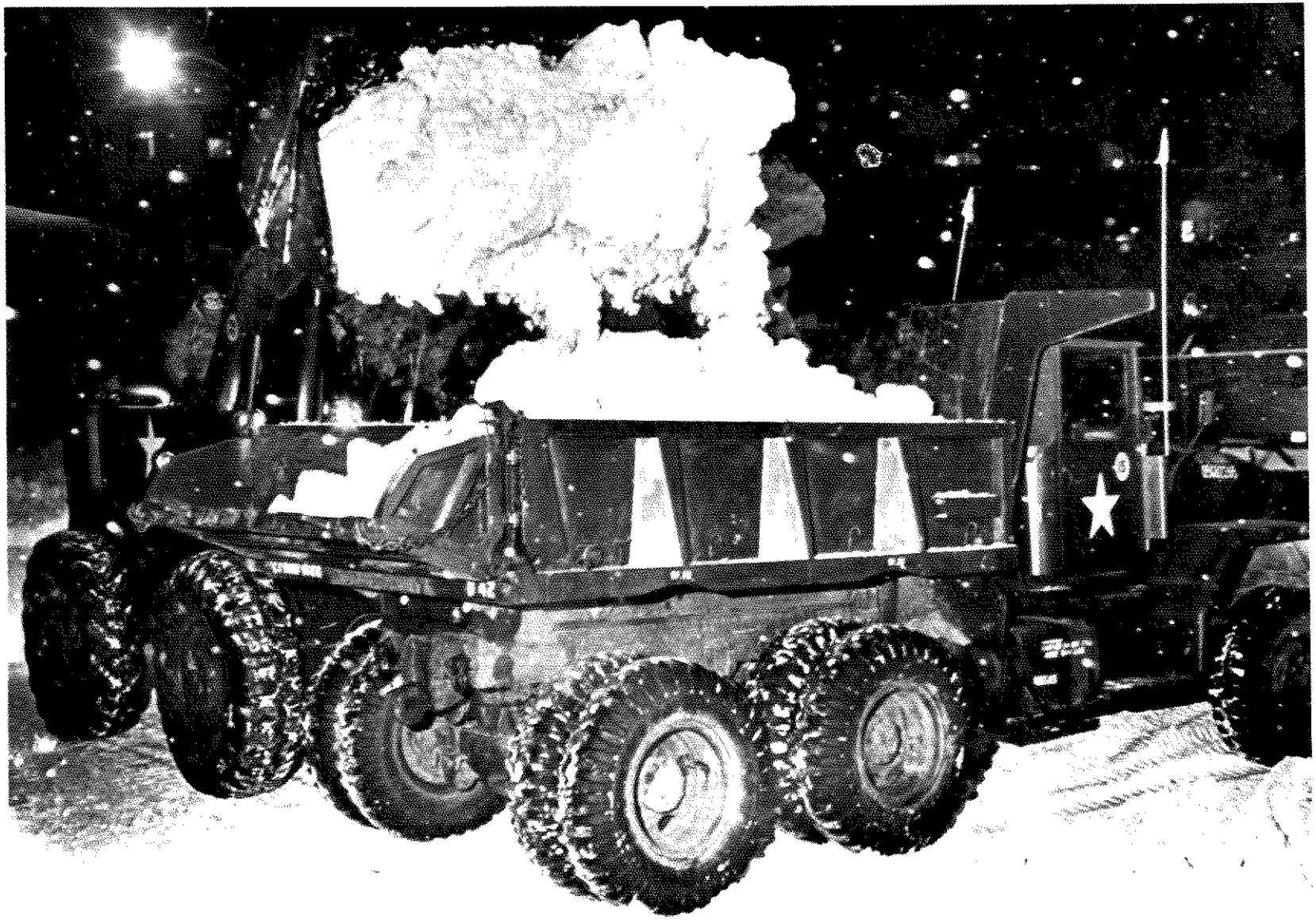


Photo 11 - National Guard payloader dumps a load of snow into a military truck Tuesday night, 1 February, on a main road leading to the emergency room of Buffalo General Hospital. More help arrived early Wednesday morning from Ft. Bragg to aid in clearing Buffalo's streets. (A.P.)

About 320 U. S. Army Airborne troops, conspicuous in their red berets and white arctic boots, arrived on 2 and 3 February at the request of the FCO to assist in snow removal operations in the city of Buffalo. In addition to the Corps contracted trucks for hauling snow, the 20th Engineer Brigade from Ft. Bragg, NC, brought 13 front loaders, 12 graders and 10 dump trucks with them and worked exclusively in the city. They worked under the direction of the FCO and received technical guidance from the Buffalo District Engineer.

The Airforce provided airlift services of supplies, materials, machines and men into the stricken area. Airforce personnel at the Niagara Falls Airforce Base provided housing and administration support to the Army troops.

Approximately 65-70 U. S. Marines from the Buffalo area were assigned to assist in clearing ConRail tracks and switches in local yards.

Jefferson and Lewis Counties also received valuable military assistance. About 2,400 U. S. Marines had been at Camp Drum near Watertown, NY, since early January taking part in a cold weather training exercise called "Alpine Warrior-77." Some of these Marines along with 14 of their heavy duty, 25-ton Amtrack vehicles were dispatched to the two counties to assist in any way they could (photograph 12). The Marines also provided drivers for a number of Army half tracks and utilized their helicopters to provide long range delivery of supplies and emergency medical evacuations (photograph 13). The National Guard, utilizing track vehicles, provided much needed assistance in the northern counties. U. S. Army troops from Camp Drum also assisted during the emergency. The military personnel operated under the direction of local law enforcement agencies.

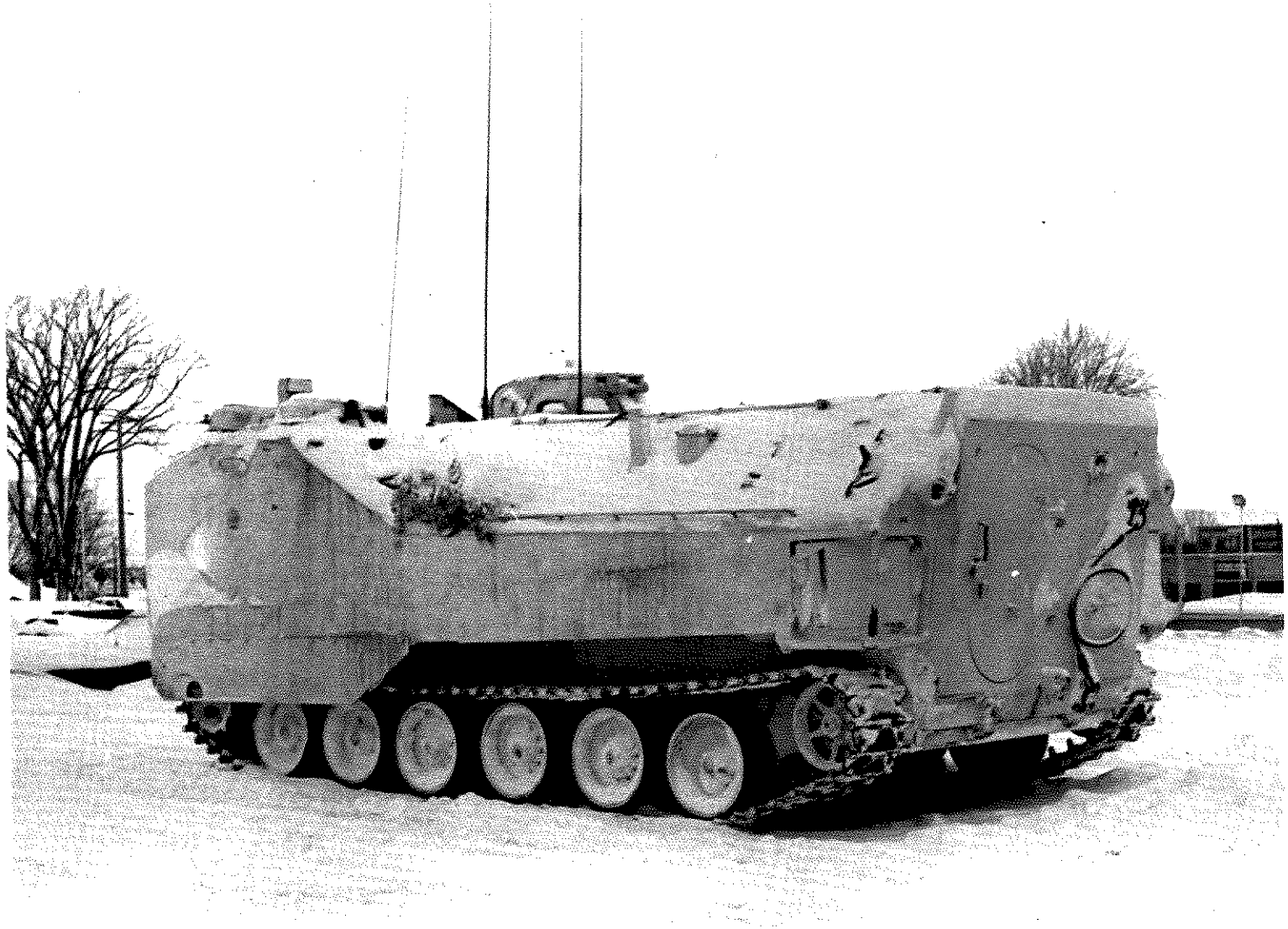


Photo 12 - Many 26-foot Amtracks, similar to this one, were used extensively by the U.S. Marines for rescue and other missions in the Jefferson County area. (2/1/77 W.D.T.)

Photo 13 - Two patients are transferred from a military helicopter to a waiting ambulance. They were then rushed to Watertown's Mercy Hospital where they received medical treatment. (2/2/77 W.D.T.)

Both State and Federal troops received high praise from officials and citizens alike for outstanding performances.

COORDINATION

General - Close coordination was maintained between Corps officials and several Federal, State, and local agencies throughout the snow emergency. Working side by side with Army and National Guard troops, the Red Cross, the Salvation Army, local police and fireman, and scores of volunteers, the Corps coordinated a massive snow removal effort. The Corps set up a 24-hour-a-day Emergency Operations Center at its District office. A local newspaper tabbed it the "War Room" since the orders on how, when, and where the battle against the snow would be fought came from that command center (photograph 14). The principal agencies with which Corps coordination was maintained and cooperative efforts conducted are discussed below.

Federal Disaster Assistance Administration (FDAA) - On 30 January 1977, the Buffalo District received a mission assignment from FDAA for emergency snow removal from blocked vital arteries which posed a threat to safety of inhabitants in Western New York State. The New York State Department of Transportation (DOT) was the Governor's authorized representative and the State Coordinating Office. That office designated priorities and locations for Corps of Engineers operations (see FDAA letters dated 31 January and 7 February 1977 and DOT resolution dated 31 January, attached as Exhibits 1, 2 and 3).

For close coordination with representatives of the FDAA, DOT, city of Buffalo, and other Federal, State, regional and local agencies, the Corps of Engineers established a Liaison Office at the command center set up by FDAA in the State Office Building. The Corps Liaison Office

Photo 14 - U.S. Army Corps of Engineers personnel manned their Emergency Operations Center around the clock. (2/4/77 B.E.N.)

was staffed around the clock during the period 31 January through 8 February by Buffalo District personnel.

New York State Department of Transportation (DOT) - Work requests for snow removal in the seven Western New York counties were prepared by DOT, based upon information provided by officials of local governments through the appropriate county government (Exhibit 4). DOT established a priority for each request based upon restoring essential services in addition to the timeliness of the request. Within the city of Buffalo, contracting to clear bus routes were the first priority in order to reestablish community life. The Corps Liaison Officer had prime responsibility to review work requests for clarity, possible duplication, and completeness. The Corps Liaison Officer then relayed work requests to the Operation Center of the Buffalo District office. Corps liaison personnel stationed at State, county, and city offices discussed changes in scope of work suggested by Corps personnel in the field based upon on-site observations. As a result, many of the original work requests were modified to accommodate current and actual field conditions. In addition, Corps liaison personnel answered requests for general information on the Corps involvement in the snow emergency.

Counties - In the Buffalo District office, four coordinators were chosen to monitor the seven affected Western New York State counties. Later a fifth coordinator and several assistants were added for the city of Buffalo, where snow removal requests were the most numerous. The tasks of the Buffalo District office county coordinators were to:

1. Relay snow removal requests and policy information to field personnel;

2. Receive field reports on the progress of each work request;

3. Compile information on each county for daily status reports;

4. Coordinate resolution of any problems arising in the field. Typical problems included obtaining authorization for emergency diversions, locating a "missing" contractor, informing inspectors of areas that were cleared by other equipment, and securing advances for field personnel; and

5. Monitor contracts for snow removal and coordinate with local officials on the priority of work.

All seven Western New York State counties were assigned field coordinators who operated from county field offices. Representatives of the New York State Department of Transportation were also assigned to county offices. The field coordinators were responsible for all field coordination with State and local representatives and overseeing Corps inspectors assigned to snow removal contracts. In order to further coordinate and quickly respond to emergency situations, representatives of the Associated General Contractors, DOT, and the city of Buffalo were stationed at the Corps Buffalo District Office during much of the mission.

Both the field offices and District office were staffed 24 hours a day during the emergency operations.

News Media - The Public Affairs Office of the Buffalo District kept the news media informed of Corps activities and assigned photographers to specific work locations. The news media were hampered by the poor road conditions in the area. Another problem was overloaded telephone circuits which delayed contact between the Public Affairs Office and the news media. Television and radio news stations were very helpful to the Corps by soliciting snow removal contractors and assisting in removal of parked and stalled vehicles. The newspaper, radio, and television people

did an outstanding job during the emergency period. Newspaper reporters and photographers ventured into the elements and traveled by whatever means available to get the information and photos to their office in time for publication (many of the excellent photographs taken by the media appear in this report).

The radio station operators stood by their transmitters 24 hours a day, relaying the latest information. This service to many people, especially those in the rural areas, was the only link with the outside world for many days. The broadcasters gave the latest weather forecasts, told where assistance was needed for the dispatch of four-wheel drive vehicles, kept the public abreast as to what schools, plants, churches, stores, and other buildings were closed or opened, where people could get emergency medicine, and kept people informed of what conditions were outside of their homes.

People from the television stations maintained their good reputation of always being at the source of the news. This is evidenced by photograph 15 showing a news crew standing on snow drifts as high as an automobile, shooting film of a military plane delivering much needed aid in the middle of a snow storm. Because of the severity of the storm in the nine affected counties, not only local, but national and international reporters filed news stories of the unbelievable blizzard of '77.

DAMAGE SURVEY REPORTS

Following the Emergency declaration by President Carter, detailed Damage Survey Reports (DSR's) were prepared by the Corps for subsequent project approval by the Regional Director of the Federal Disaster

Photo 15 - Television crew braves elements to record arrival of military plane airlifting badly needed men and equipment. Snow is so deep that only the roof of a car buried by the snow is visible at lower left. (1/77 C.E.)

Assistance Administration. These reports defined the scope of the eligible work and an estimated cost to accomplish the work based on the information available at that time.

Due to the nature of this emergency, it was necessary to prepare the DSR's concurrently with performance of the contract mission for snow removal. Based on requests received from the New York State Department of Transportation, cost estimates for snow removal were prepared in categories based upon the type of road, suggested equipment to be used, and location of the roads. The assigned roads were divided into the following four groups and a unit cost per mile was estimated for each group.

Group 1 - Urban streets with high snow drifts requiring a long haul and many parked and stranded vehicles. The estimated cost per mile was $10,000.

Group 2 - Suburban streets with high snow drifts requiring a short haul and a lesser number of stranded vehicles than Group 1. The estimated cost per mile was $8,000.

Group 3 - Small community streets with smaller snow drifts, less hauling, and minimal stranded vehicles. The estimated cost per mile was $6,000.

Group 4 - Rural roads with low snow drifts, no hauling, and isolated stranded vehicles. The estimated cost per mile was $3,000.

The lengths of roads to be cleared were measured from available maps. Judgment was used to categorize the roads into the above four groups. A cost estimate for clearing each street and a summary of those cost

estimates for each of the nine counties in Western and Northern New York State was prepared.

The actual cost of 6.8 million dollars for snow removal work proved to be far less than the estimated 13.5 million dollars in the DSR's. This was largely due to subsequent changes in mission requirements, i.e. State, county, or local highway crews had already cleared some roads before contractors could get to the site or drifts were cleared from roads faster than estimated because in many areas drifts were not over the entire length of road as originally assumed.

CORPS CONTRACTS

General - Information on contractors and equipment was solicited, recorded, and categorized initially by State, county, city, town, and village, and in the Buffalo Metropolitan Area, further subdivided into sections of the city and adjacent communities. During the peak demand for equipment, it became difficult to obtain certain types of equipment without a long search through several contractors' lists. Subsequently, equipment was categorized by type: that is; loaders, dump trucks, dozers, graders, blowers, backhoes, and combinations. This categorization was further identified for Western New York State by equipment in the Buffalo area, and in outside communities within one hour travel time. Another grouping was made of equipment within a reasonable distance of Buffalo, such as Batavia and Rochester.

The actual scope of the job facing the district was not realized until 1 or 2 February as the assignment of work tasks continued to mount. It became evident very early in the operation that the really viable item of contractor-owned equipment able to cope with hard packed drifts and available in sufficient numbers for the snow removal task, was the rubber

tire mounted front end loader. Whereupon, the assignment and matching of jobs and contractors was concentrated on those owning this particular item. In addition to front end loaders, trucks were contracted for in sufficient numbers to keep the front end loaders fully occupied. Contracts were adjusted as field reports were received. Trucks were added or detailed to other jobs as necessary to maintain contractor production and contracts adjusted accordingly. Other types of equipment, (plows, graders, etc.) were employed as particular needs were realized but, because of road conditions and equipment availability, the bulk of snow removal work was performed with the front end loader in combination with trucks for hauling and dumping snow in areas where it no longer obstructed transportation.

Contracting procedures - Prospective contractors were contacted by telephone and the scope of work was discussed based on the individual work requests. From this initial contact, the prospective contractors indicated whether or not they were interested in a snow removal assignment. Before a work assignment was made, it was necessary that the contractor have a negotiated contract. Negotiations were done by telephone. The contractor was required to understand the work to be done, the location, name of Corps inspector and meeting place, and expected time of arrival at the work site. The negotiated contract was given a contract number and included the full operational cost per hour of the contractor's various pieces of equipment. This hourly equipment cost included costs for the operator, fuel, and maintenance. In anticipation of a possible gasoline shortage for contractors equipment, the Corps made arrangements for an emergency supply of fuel, but the critical shortage never materialized. The Corps inspector directed the contractor on the snow removal work, inspected the work, accounted for the contractor's equipment and labor time, and generally oversaw the entire operation.

General guidelines issued for snow removal are shown on Exhibit 5. The form used to record the contractor's equipment time is shown on Exhibit 6. A form letter carried by technicians servicing contractor's equipment during the imposed driving ban is shown on Exhibit 7. Within 24 hours after being ordered to begin contracting for snow removal, the Corps had a contractor clearing snow on the south side of Buffalo (photograph 16), another clearing Fuhrmann Blvd., another clearing the perimeter of Grand Island, and among others a contractor working in Niagara Falls.

Two main problems facing contractors and military personnel assigned to clear roads and streets were the large number of abandoned vehicles and the shortage of areas to dump snow. The first problem was handled by knocking on doors or using a bull horn to ask residents to move their cars, and also by hiring tow trucks to remove abandoned cars to designated parking areas. This system worked if the tow truck driver kept track of the point of pick up and delivery, and gave a good description of the car, including the license plate number. Unfortunately, this was not done by all agencies involved in snow removal. Hundreds of motorists had no idea where their cars had been taken (photograph 17). The second problem, that of selecting snow dump areas, was handled by the City of Buffalo, Corps inspectors, and the coordinating centers. Because the snow was piled so high in the dump areas, the snow melted very slowly, thus avoiding flooding problems. In fact the melting of the dirty snow was so slow that some areas still had snow at the beginning of May. Photograph 18 shows a typical dump site utilizing open spaces. Photograph 19 shows the snow being dumped into the Niagara River. This method was only used by contractors working in close proximity to the river. Other problems confronting the mission were the shortage of large snow blowers and the reclosing of roads after they had already been cleared. Additional heavy duty blowers and equipment were located and shipped into the affected area from down state, Colorado, etc. New York City and Toronto

Photo 16 - This private contractor, hired by the Corps of Engineers, clears South Park Avenue in south Buffalo. Clearing the snow was being slowed down by deserted vehicles, left, which must be removed. (1/31/77 A.P.)

Photo 17 - Typical post-storm scene in Buffalo area as shown above in a 1 February photograph. First problem was to locate your lost auto, next was to dig it out and get it started, and last, but not the least, was to try to get it back home. (B.E.N.)

Photo 18 - A dozen and a half days after the storm first hit, massive snow removal operations continued as shown by many dump trucks carrying snow to the small boat harbor off Fuhrmann Boulevard, on the south side of Buffalo. (2/15/77 B.E.N.)

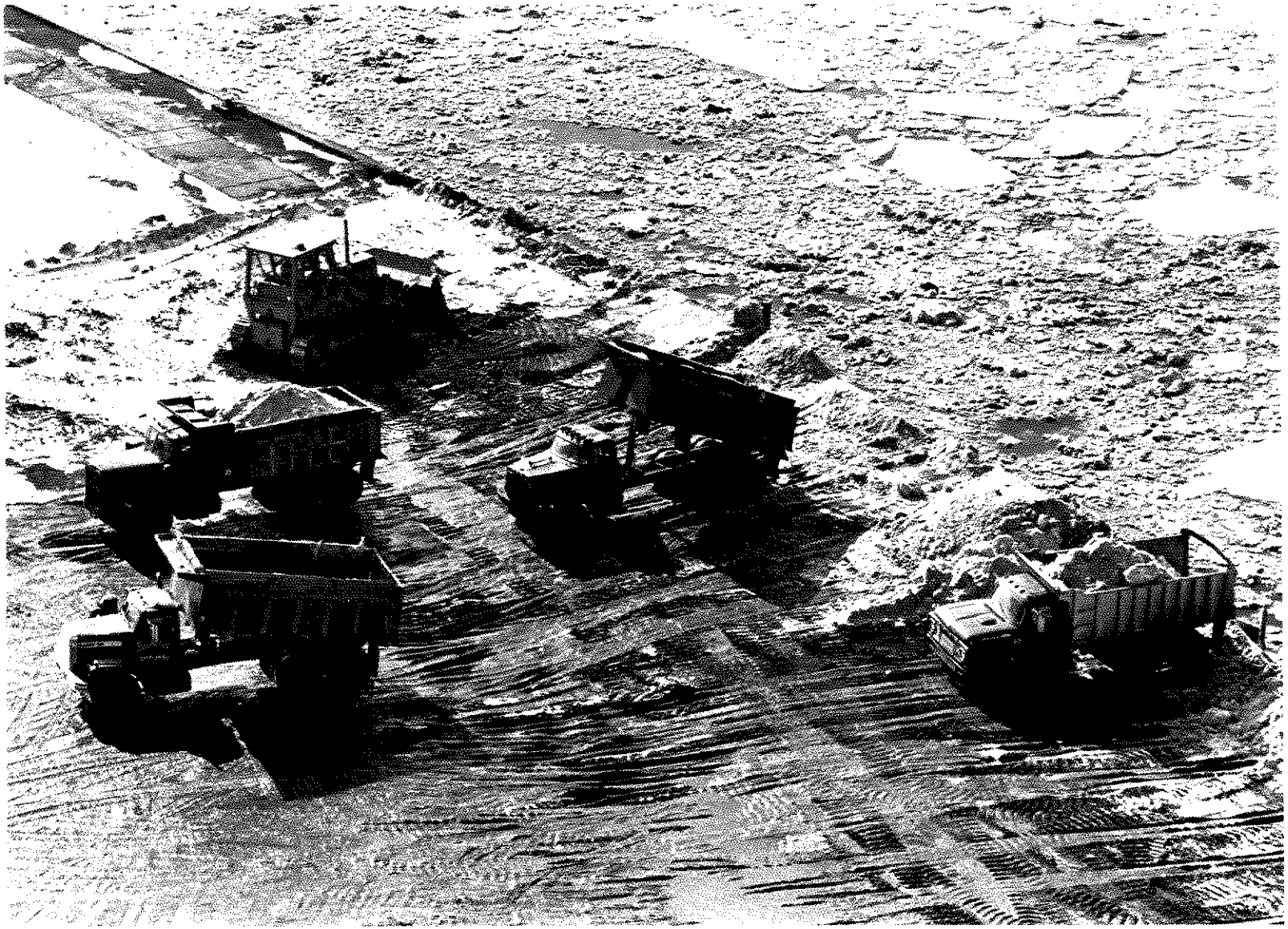


Photo 19 - Truck after truck dumped their loads of snow in the Niagara River. Dumping into the river helped alleviate the shortage of dump areas. (2/77 C.E.)

also sent equipment and crews to aid in the emergency. Because of the severity of the blizzard, and the length of time the strong winds continued, a number of roads had to be cleared more than once.

Areas Contracted - After a request by the DOT was processed and contracted out, its location was plotted on a county map and the contractor's progress was followed by the county coordinators and the Control Center by means of the inspectors on-site. The location of all roads and streets contracted for snow removal by the Corps of Engineers within the nine counties and the city of Buffalo are plotted in red on Plates 4 through 15. These plates also reflect the roads and streets that were cleared by the military.

Consolidated Rail Corporation (ConRail) - ConRail is a government-subsidized corporation and is the largest railroad serving Buffalo. The blizzard completely immobilized the industry. On Wednesday, 2 February, the Interstate Commerce Commission invoked an embargo on all railroad shipments, including food, into Buffalo. Railroad cars of merchandise and food were becoming snowbound in Buffalo yards and could not be unloaded until tracks were cleared. The embargo, which was lifted on 14 February, prevented additional cars from entering Buffalo and thereby compounding the problem.

A virtual army was formed to clear the freight yards, ConRail utilized about 500 of their employees, including 200 from outside the Buffalo Division. ConRail used rail-mounted plows and a large rotary blower that had not been used in 10 years (Photograph 20). Although many area industries were anxiously awaiting rail service to increase their operations, rail priority was given to the food industry.

Photo 20 - Obscured behind a cloud of flying snow is a big rail mounted rotary plow. Although the Syracuse based plow had not been used for 10 years, it did a tremendous job in assisting in the task of clearing ConRail lines. This photograph was taken on 6 February along the Niagara Thruway near downtown Buffalo. This drift was about 1-1/2 miles long and up to 15 feet deep. (B.E.N.)

The Buffalo District, Corps of Engineers, hired 15 contractors to assist ConRail in snow removal operations in their various freight yards in the Buffalo area. Their combined equipment totaled 70 front end loaders, 125 dump trucks, and 6 dozers. Several of the contractors came from as far away as New Jersey to assist in the operations. Most contractors worked around the clock to complete the work in approximately ten days. ConRail personnel oversaw the contracting work with some monitoring done by the Corps coordinator. On 3 February, the personnel office of the Corps of Engineers, using the media and employment offices to tell of its need, hired 185 temporary employees in one evening. This included all the normal government paperwork and swearing in procedures required when hiring a new government employee. The commendable task was performed overnight so that the 185 temporary employees along with 60 U.S. Marines could assist ConRail in clearing their railroad yards. The employees worked, for the most part, with shovels and brooms and cleaned switches and tracks clogged with snow and ice, returning them to service (photograph 21). The climate conditions at times were very severe, with gusting winds and temperatures in the 5^{o} to 15^{o}F range. Under supervision of ConRail personnel, this work was completed in approximately two weeks. They also provided transportation for the temporary help.

The snow was placed into trucks and dumped in nearby lots, but the volume of snow became such a problem that ConRail decided to form "snow trains" (photograph 22). Snow trains were made up of a large number of open-bodied rail cars, filled with snow by front end loaders. The trains were then taken out of the Buffalo area.

ECONOMIC LOSSES

Total economic loss attributable to the Blizzard of 1977 within the nine affected counties was considerable. The following represents a sample of the magnitude of storm related losses and reflects only those compiled

Photo 21 - Typical cleanup scene utilizing shovels and brooms. The Corps of Engineers hired 185 laborers to assist ConRail with switch cleaning in local yards. Front end loaders, dozers, and dump trucks were also utilized. (2/4/77 Corps)

Photo 22 - One of the methods used to remove excessive snow from ConRail's Frontier Yard was to form "snow trains," that is to load the snow into rail cars and haul them out of the Buffalo area. (2/5/77 B.E.N.)

for Erie and Niagara Counties. These values were presented in a Buffalo Area Chamber of Commerce report prepared by Kurt P. Alverson, director of research and marketing and Kathleen Hess, assistant director. The report was based on questionnaires completed by more than 300 firms covering all economic sectors except agriculture, self-employed persons, professionals and government establishments. The report revealed that a total loss of $221,490,000 resulted from the effects of the blizzard over approximately a five and one-half day period beginning 28 January. The storm affected about 175,000 persons who lost wages totaling about $36,250,000. "The largest loss of wages occurred in the manufacturing sector, while the largest number of employees affected by the storm was in the wholesale and retail trade categories." It further stated that "The largest economic loss occurred because of the inability of area business and industry to operate on normal schedule." It was estimated that approximately 54.1 percent was termed nonrecoverable during the calendar year. The report also addressed the natural gas curtailment, which generally occurred during the same period. A loss of another $76,380,000, including $8,400,000 in payroll to 10,000 employees was attributed to the gas cutbacks. The total loss was estimated to be $297,870,000 for the combined blizzard and fuel curtailment within Erie and Niagara Counties.

Another area suffering considerable losses was the agricultural industry. The accumulative agricultural losses in the nine counties were considerable, exemplified by the estimated $8 million loss in Jefferson County alone. Hardest hit, was the dairy industry, where it was estimated that at the height of the storm, approximately 85 percent of Jefferson County's dairy farmers were spilling their milk because tank trucks from processors were unable to reach their farms. In addition to absence of milk pick ups, snowbound farmers (photograph 23) were faced with three other major problems: feed and grain shortages, disposal of manure, and the threat of roof collapses. Specific orders were issued from the Buffalo District,

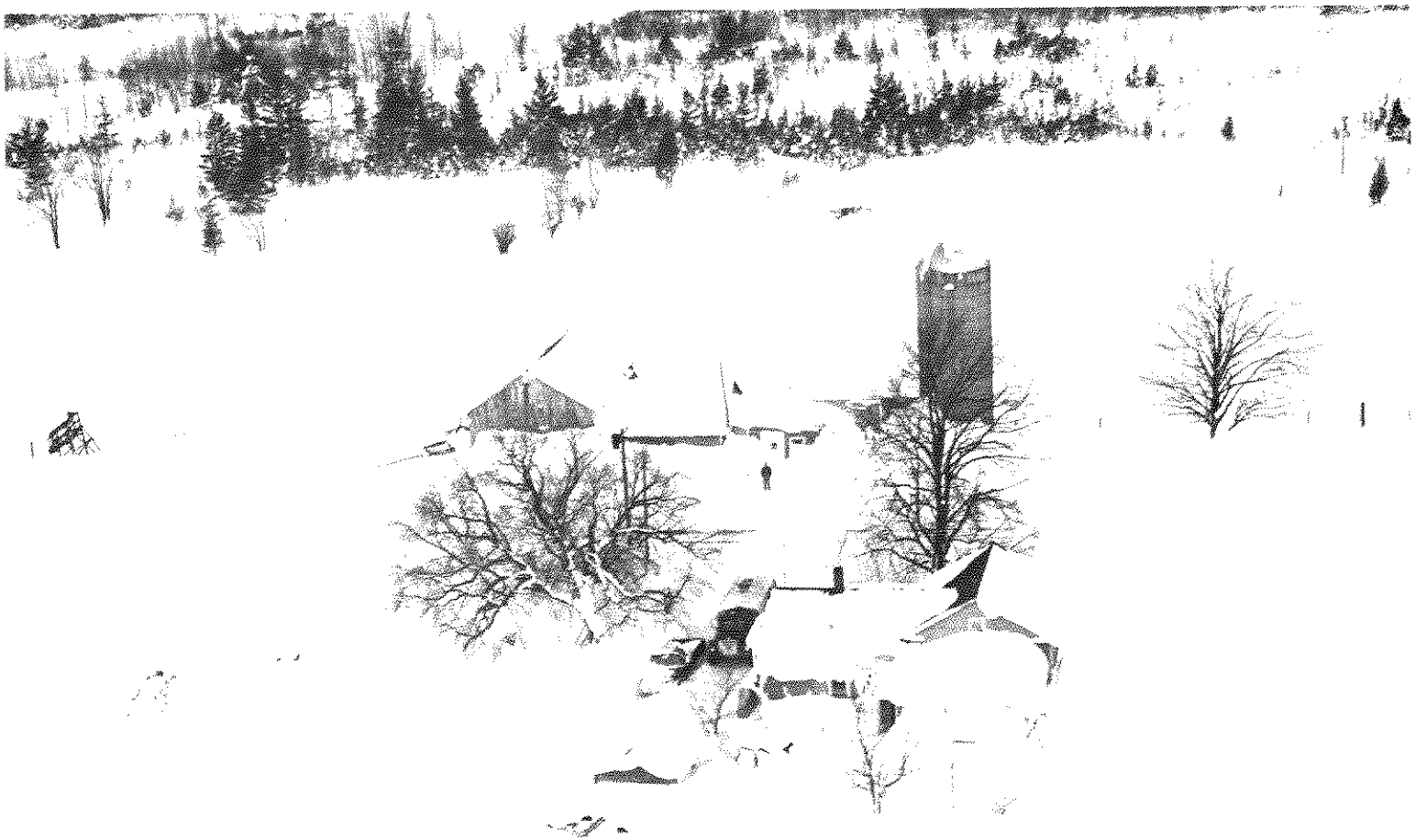


Photo 23 - Aerial view depicting common problems rural residents experienced during the storm. Some rural areas did not get their roads cleared for almost two weeks after the blizzard. (2/2/77 W.D.T.)

Corps of Engineers Control Center, "concentrate on opening roads to farms, to allow milk pick up." The inability of some farmers to reach their barns to feed cattle, and later on the shortage of feed, will have long lasting effect on the milk production of the cattle, as long as a year in some cases. The shortage of feed became critical as time passed since 90 percent of all feed and grain for the northern counties comes from rail cars that had to pass through Buffalo's snow clogged railyards. The accumulation of manure in barns became a problem because the farmers could not spread it in the fields due to the deep snow. A number of barns collapsed under the tremendous weight of accumulated snow. In some cases, livestock were trapped inside and had to be destroyed. In Jefferson County alone, at least seven barns collapsed, amounting to over $400,000 in damage.

COMPLETING THE MISSION

The disaster designation made by President Carter on 5 February 1977 opened the way for more extensive Federal relief, including direct reimbursement to local governments for snow removal expenses. Therefore, as of 8 February 1977, the Buffalo District was not assigned any further requests from communities for help in snow clearing operations. The city of Buffalo, and other cities, towns, villages and counties took over the contracting of new jobs while the Corps completed work in progress. The Corps of Engineers assisted local officials in hiring contractors as they terminated Federal work. All Buffalo District contracting efforts were completed by 13 February 1977.

AUDITS AND PAYMENTS

Corps inspectors submitted daily reports on contractors' equipment and labor time. Invoices were received from the contractors and compared against the Corps inspectors' reports. If these two documents agreed,

or when the differences were reconciled, payments were made on the basis of previously negotiated hourly rates for equipment rental.

CONTRACT SUMMARY

Table 1 shows the estimated miles of road plowed, the actual cost, the number of requests and the number of contracts awarded for the nine counties involved in the snow emergency.

Table 1 - Summary Operation Snow Go 1977

County	Snow Removal Requests	Contracts	Contractors	Estimated Miles	Actual Cost
					$
Cattaraugus	38	24	7	258	308,800
Chautauqua	7	6	5	39	89,200
Erie	180	92	117	1,062	3,984,600
Genesee	16	11	11	559	617,300
Jefferson	36	59	35	300	597,100
Lewis	4	12	12	150	66,300
Niagara	27	11	10	236	433,000
Orleans	7	5	5	97	98,700
Wyoming	13	14	14	485	597,600
Total	328	234	216	3,186	6,792,600

SUMMARY

The total Corps of Engineer effort including the assistance by TDY personnel, amounted to approximately 39,000 man-hours of work or 20 man-years. The approximate cost of the emergency work amounted to

$6.8 million for private contractors and $0.7 million for inhouse costs. The accomplishments that resulted from "Operation Snow Go" were considered outstanding. This tribute is not the sole result of efforts put forth by any one individual, group, or organization. It was accomplished because people from all walks of life knew they had a tremendous job to do and the only way to expeditiously get it done was to work unselfishly together.

Since there are no records of an operation covering an event such as the magnitude of the Blizzard of 1977, this report is presented to serve as an example of how an assignment of this type can be accomplished. As in everything, there is always room for improvement in procedures, equipment, and methods, but you can't improve on 100 percent effort, and that's what people gave. They proved once again, that when we are faced with a crisis, the American people will stand up, unite, and get the job done.

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT
FEDERAL DISASTER ASSISTANCE ADMINISTRATION
26 FEDERAL PLAZA
NEW YORK, NEW YORK 10007

REGION II

IN REPLY REFER TO:

January 31, 1977

Brig. General Robert Moore
Division Engineer
North Central Division
Corps of Engineers
536 South Clark Street
Chicago, Illinois 60605

RE: Emergency Contract
FDAA 3027 EM
New York
Presidential Declaration
January 29, 1977
Corps of Engineers
Request Number 1

Dear General Moore:

Pursuant to the provisions of Public Law 288, 93rd Congress, as amended, (hereinafter called the Act); Executive Order 11795; Title 24, Code of Federal Regulations, Chapter XIII Part 2205 (Federal Disaster Assistance) and Chapter XIII Part 2201 (Reimbursement of Other Federal Agencies under Public Law 93-288), your agency is hereby requested to perform the following emergency relief functions:

To contract for and administer activities related to the emergency removal of snow.

In accordance with the provisions of 24 CFR 2205.13, you should assure that the activities authorized to be performed by this letter are accomplished in an equitable and impartial manner, without discrimination on the grounds of race, color, religion, nationality, sex, age, or economic status.

In accordance with the provisions of 24 CFR 2205.80-.83, all financial records, supporting documents, statistical records, and other records pertinent to the assignment shall be retained and shall be accessible to duly authorized representatives of HUD and the US Comptroller General for the purpose of making audits, excerpts, and transcripts for a

EXHIBIT 1

period of three years starting from the date of submission of the final billing.

All communications related to this request must bear the above Federal agency initials and request number.

Sincerely,.

Thomas R. Casey
Regional Director
for Disaster Assistance

EXHIBIT 1_2

DEPARTMENT OF THE ARMY
NORTH CENTRAL DIVISION, CORPS OF ENGINEERS
536 SOUTH CLARK STREET
CHICAGO, ILLINOIS 60605

NCDDP

7 February 1977

SUBJECT: FDAA Emergency Contract 3027 EM, State of New York

District Engineer, Buffalo

Forwarded for your information and necessary action is Corps of Engineers REquest No. 1 on above contract.

FOR THE DIVISION ENGINEER:

Incl:
a/s

P. A. MACHINIS
Emergency Operations Planner

EXHIBIT 2

RESOLUTION

WHEREAS, on the 29 day of January, 1977, the President declared an "Emergency" in the State of New York under the provisions of Public Law, 288, 93rd Congress, and

WHEREAS, Department of Transportation, is a public entity within said State;

NOW THEREFORE, Be it Resolved; by David J. Piper of New York State Dept. of Trans. that the Federal Disaster Assistance Administration be and hereby is requested to arrange to have the appropriate Federal Agency perform the following work:

Emergency snow removal as per attached attachments and/or amendments.

Clearing designated streets of abandoned, stalled and parked vehicles and all other obstructions to facilitate snow removal.

This body certifies that, to the best of its knowledge and belief, the requested work is eligible under Public Law 288, 93rd Congress, and agrees to (a) provide without cost to the United States all lands, easements, and right-of-way necessary to accomplishment of the approved work; and (b) hold and save the United States free from damages due to the approved work and with respect to debris removal shall idemnify the Federal Government against any claim arising from such removal.

Passed and approved this thirty-first day of January, 1977.

Regional Highway Maint. Engr.
Name and Title

Name and Title

Name and Title

EXHIBIT 3

NEW YORK STATE
DEPARTMENT OF TRANSPORTATION
Raymond T. Schuler, Commissioner

Region 5 Office: 125 Main Street, Buffalo, New York 14203

TO: THE U.S. ARMY CORPS OF ENGINEERS
Buffalo District, Buffalo N.Y.

SUBJECT: EMERGENCY SNOW REMOVAL REQUEST NO._____

COMMUNITY:_____

ROAD IDENTIFICATION:_____

_____

BOUNDARIES:_____

_____

DESCRIPTION OF EMERGENCIES:_____

_____

_____

SPECIAL REQUESTS:_____

_____

MICHAEL CUDDY
Associate Construction Engineer
Region 5

Time:_____

Date:_____

EXHIBIT 4

GENERAL GUIDELINES

1. Understand job to be done. Divert only to emergency services*

* Such as food, fuel, hospitals, fire stations, and similar facilities. Regarding super markets, provide access for food delivery only, if necessary, not entire parking lots. Regarding farms producing milk, we are authorized to provide access into the farmer's yard to get milk out.

2. Keep track of time Contractor works each piece of equipment.

3. Deal with Contractor's foreman.

4. In cities, haul snow shortest distance possible. Clear curb to curb on main arteries and bus lines. In the city of Buffalo, we now have authority to clear secondary streets. On these secondary streets, open a good travel lane. Lanes only, do not disturb cars. If removing cars yourself or with tow truck help, be as careful as possible, record license numbers of cars moved and location where cars were left. If a car is damaged, note extent of damage and how occurred. If damaged prior to removal, note this also*

* Regarding the disposal of snow, if a disposal area is not given, look for an open lot, public park, or similar area. If there is a question as to access, call your coordinator.

5. In the country, push snow to the side. Open a travel path for vehicles as soon as possible. Clean road to a reasonable traffic width later.

6. You are on the job! Make decisions. Call in for guidance.

7. Set up shift for 24-hour work if Contractor can do it.

8. Establish radio and/or telephone contact with Operations Center - call in every three to six hours if possible and describe progress.**

** You will ordinarily be given a telephone number and person who will coordinate your reports. District office coordinators will be at:

AC 716/876-5465	Chautauqua, Cattaraugus Dunkirk No. 366-2200
876-5466	Erie, Wyoming Wyoming Co. No. 796-3310
876-5582	Niagara, Orleans Orleans Co. No. 589-4414
876-5581	Genesee, Jefferson, Lewis Jefferson-Lewis Co No. 315/782-0100

EXHIBIT 5

CONTRACT NO.

CONTRACTOR

REQUEST NO.

LOCATION:

EQUIPMENT	SIZE	HOURS

DATE _____ CE INSPECTOR _____ CONTRACTOR REP. _____

Report Daily Progress on back of this form.

EXHIBIT 6

DEPARTMENT OF THE ARMY
BUFFALO DISTRICT, CORPS OF ENGINEERS
1776 NIAGARA STREET
BUFFALO, NEW YORK 14207

NCBCO

3 February 1977

TO WHOM IT MAY CONCERN:

The man carrying this letter is a Service Technician for Dow & Company, Inc. They are distributors of heavy construction and municipal equipment, which is being used to extreme measures in this snow emergency.

These men are emergency service men and their work is to repair the aforementioned equipment for contractors employed by the U.S. Army Corps of Engineers.

If you have any questions, please call:

U. S. Army Engineer District, Buffalo
1776 Niagara Street
Buffalo, NY 14207
876-5454
ATTN: Henry Vitale

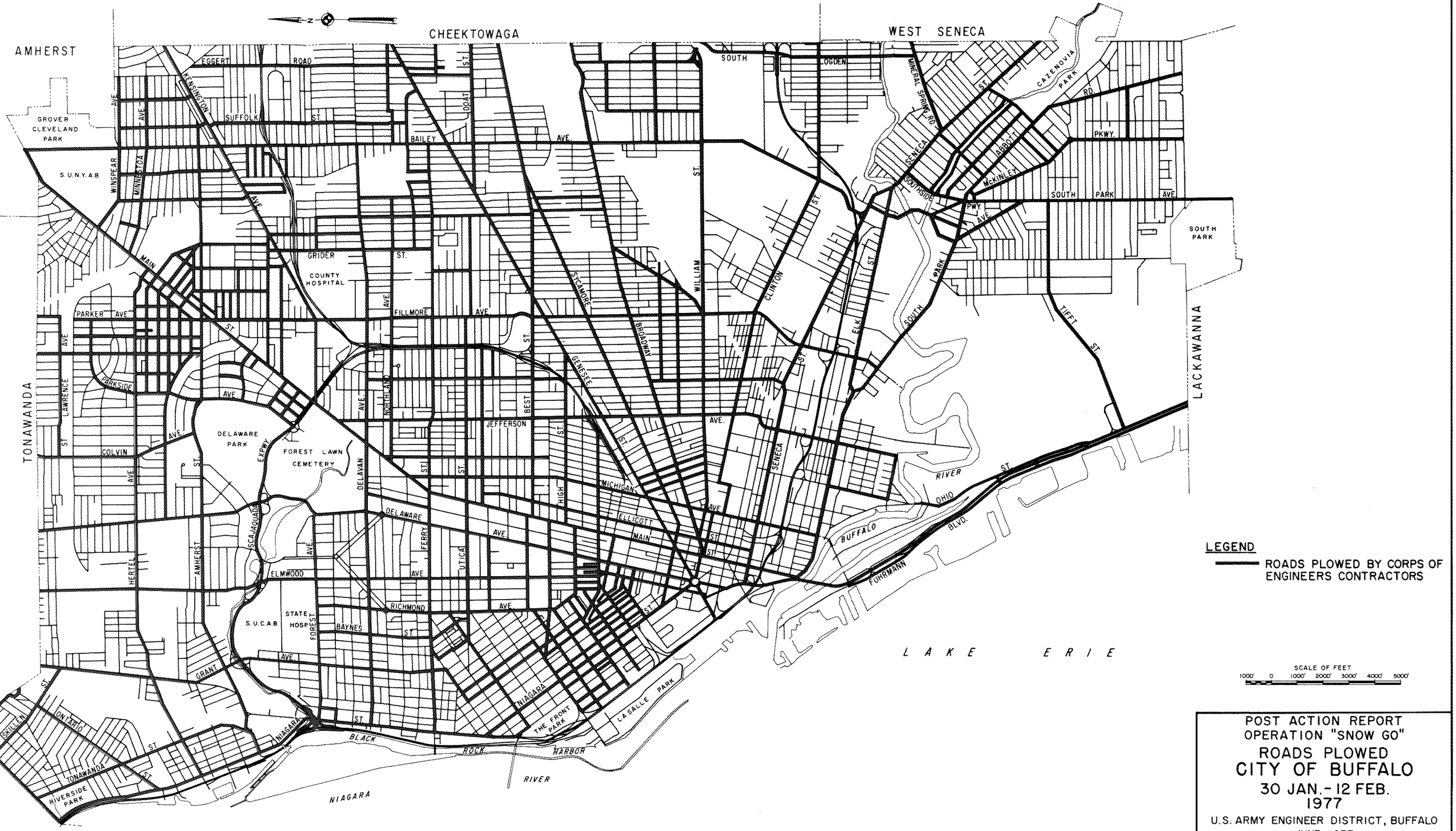
Thank you for your cooperation.

Sincerely yours,

Donald M. Liddell

DONALD M. LIDDELL, Chief
Engineering Division

EXHIBIT 7



LEGEND

ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

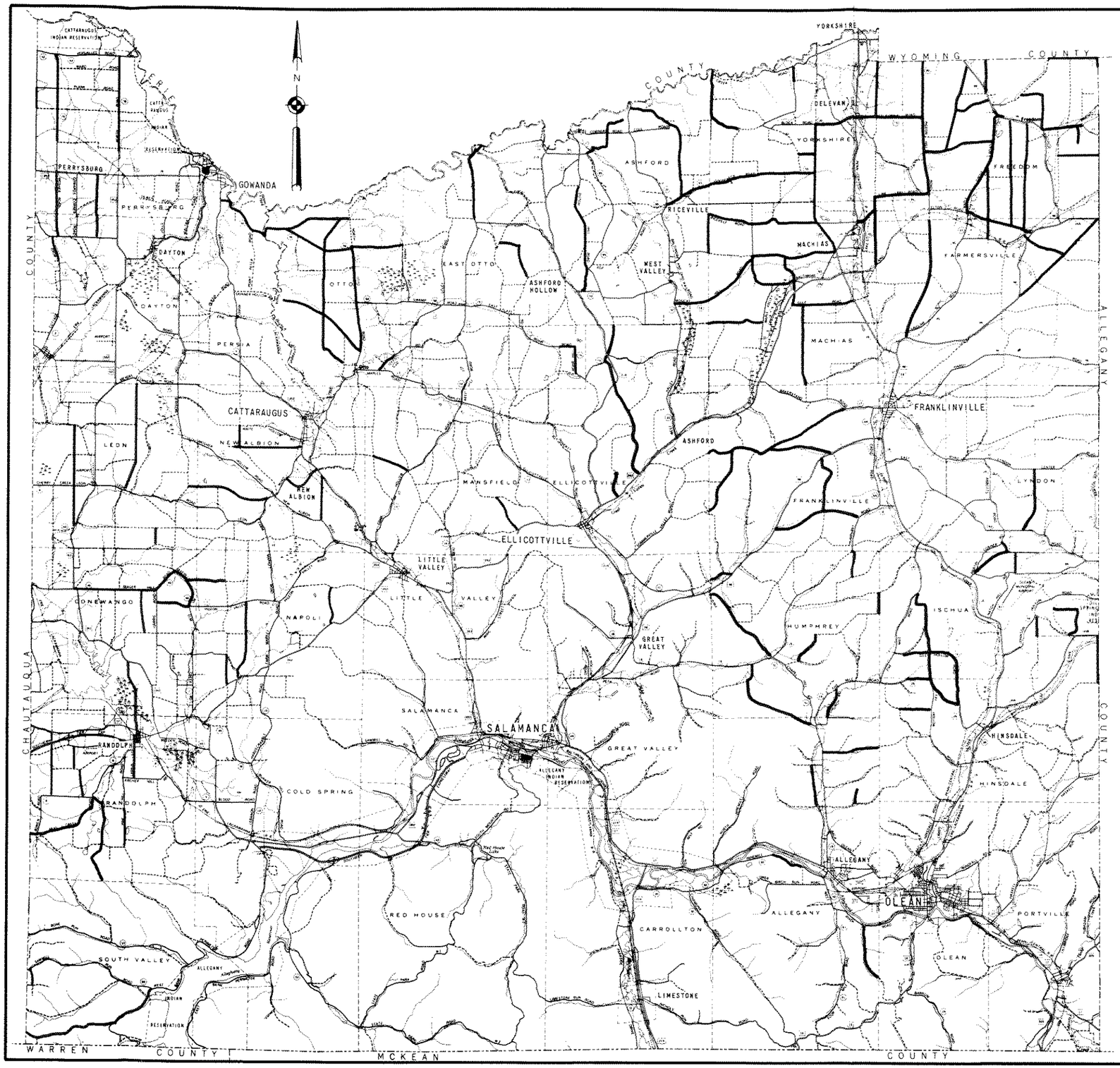
POST ACTION REPORT
OPERATION "SNOW GO"

ROADS PLOWED CITY OF BUFFALO

30 JAN.- 12 FEB.
1977

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 4



LEGEND

ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

SCALE OF MILES

1.5 0 1 2 3 4 5

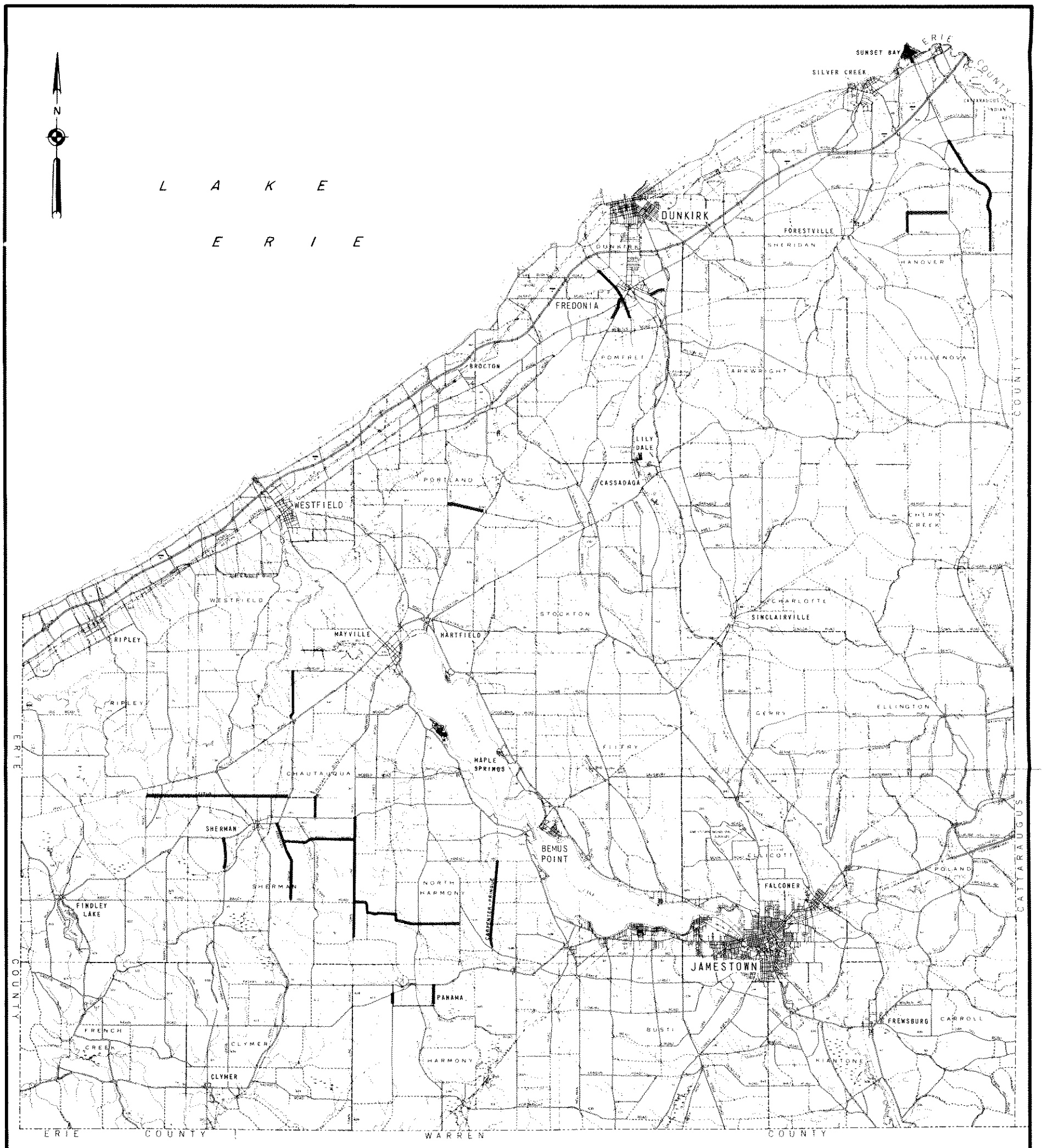
POST ACTION REPORT
OPERATION "SNOW GO"

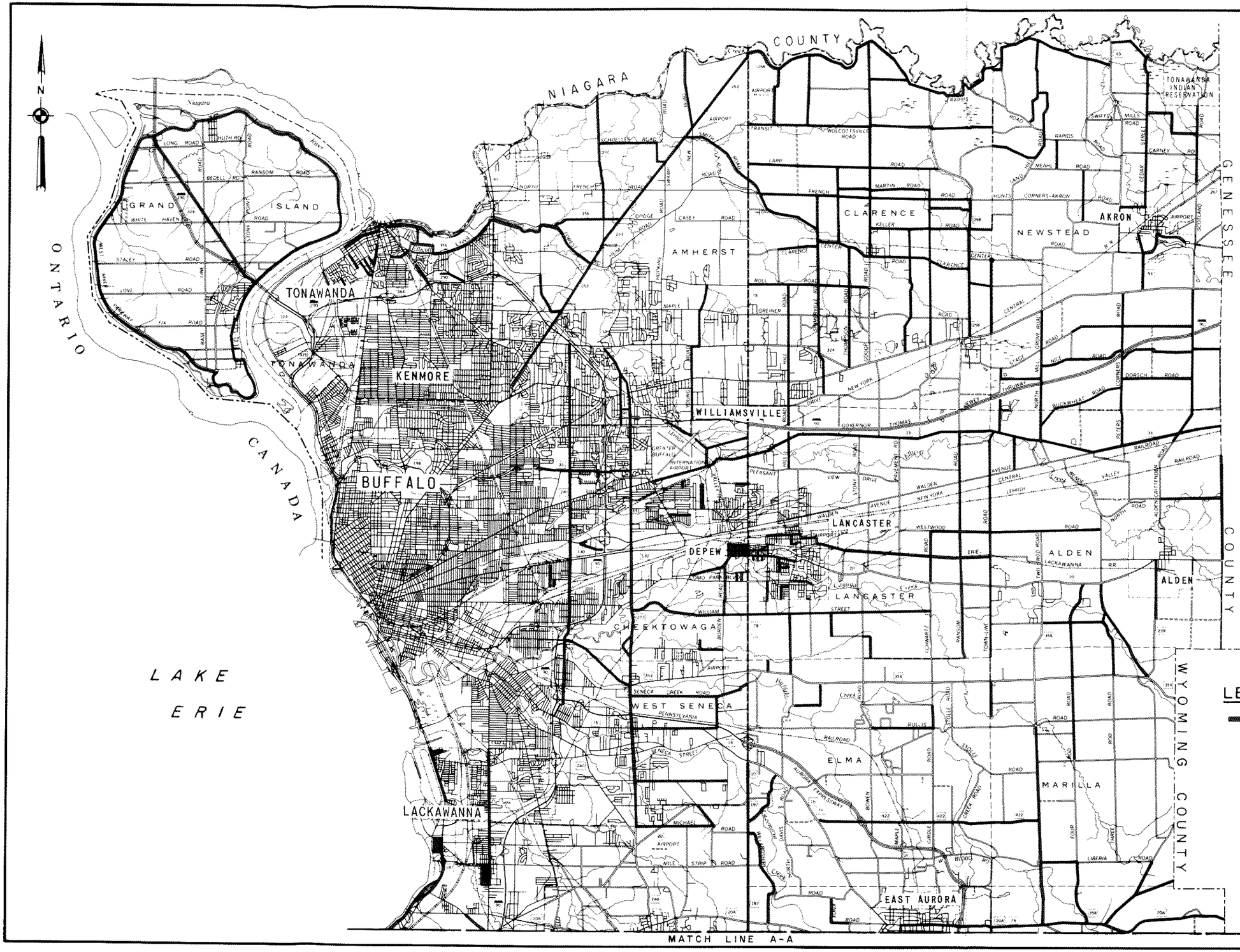
ROADS PLOWED
CATTARAUGUS COUNTY

30 JAN. - 12 FEB.
1977

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 5


N
L A K E
E R I E
SUNSET BAY
SILVER CREEK
ERIE COUNTY
DUNKIRK
FORESTVILLE
SHERIDAN
HANOVER
FREDONIA
POMFRET
BROCTON
ARKWRIGHT
VILLENOVA
LILY DALE
PORTLAND
CASSADAGA
WESTFIELD
CHERRY CREEK
CHARLOTTE
SINCLAIRVILLE
STOCKTON
MAYVILLE
HARTFIELD
RIPLEY
GERRY
ELLINGTON
CHAUTAUQUA
MAPLE SPRINGS
BEMUS POINT
ELLICOTT
POLAND
SHERMAN
NORTH HARMON
FALCONER
FINDLEY LAKE
JAMESTOWN
PANAMA
FRENCH CREEK
CLYMER
HARMONY
BUSTI
FREWSBURG
CARROLL
KIANTONE
ERIE COUNTY
WARREN COUNTY
CATTARAUGUS COUNTY
SCALE OF MILES
1.5 0 1 2 3 4 5
LEGEND
ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS
POST ACTION REPORT
OPERATION "SNOW GO"
ROADS PLOWED
CHAUTAUQUA COUNTY
30 JAN.- 12 FEB.
1977
U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977
PLATE 6



NOTE:

See Plate 4 for streets plowed within the City of Buffalo.

LEGEND

ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

SCALE OF MILES

.5 0 1 2 3

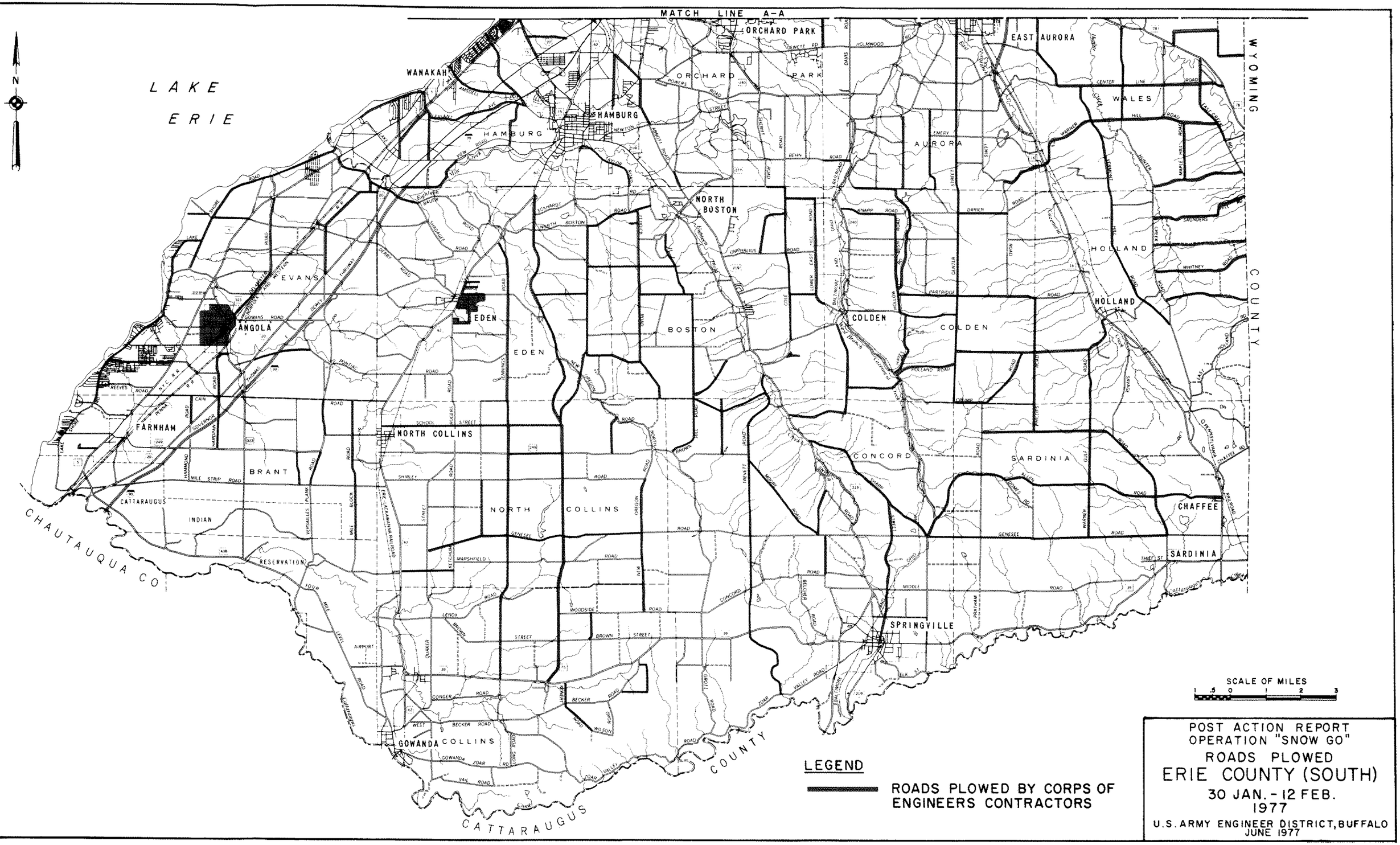
POST ACTION REPORT
OPERATION "SNOW GO"

ROADS PLOWED
ERIE COUNTY (NORTH)

30 JAN. - 12 FEB.
1977

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 7



POST ACTION REPORT
OPERATION "SNOW GO"
ROADS PLOWED
ERIE COUNTY (SOUTH)
30 JAN. - 12 FEB.
1977
U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 8

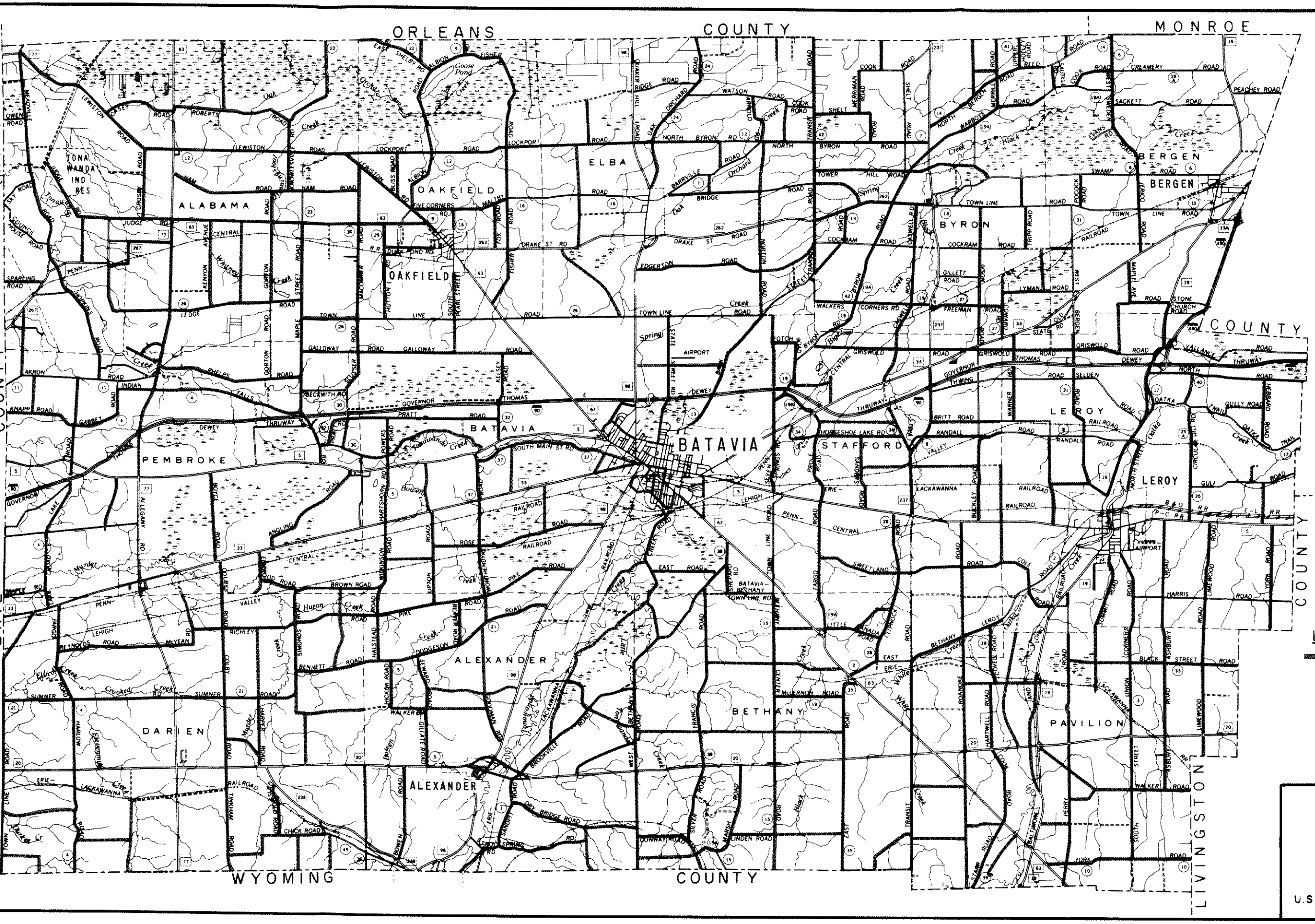
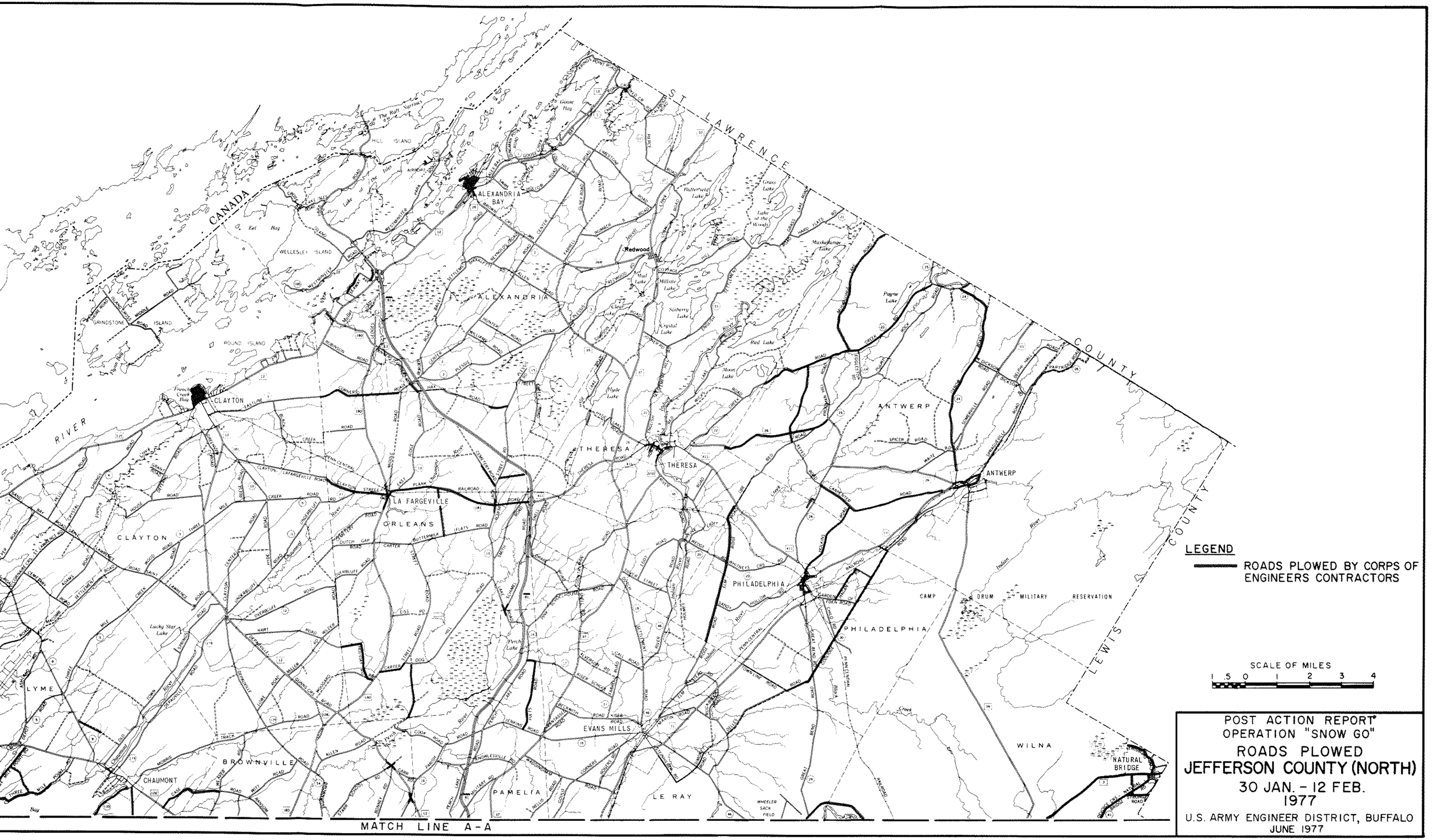

ORLEANS COUNTY
MONROE COUNTY
WYOMING COUNTY
LIVINGSTON COUNTY
TONAWANDA IND RES
ALABAMA
OAKFIELD
ELBA
BATAVIA
PEMBROKE
DARIEN
ALEXANDER
BETHANY
STAFFORD
BYRON
BERGEN
LEROY
PAVILION
AIRPORT
LEGEND
ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS
SCALE OF MILES
1 .5 0 1 2 3
POST ACTION REPORT
OPERATION "SNOW GO"
ROADS PLOWED
GENESEE COUNTY
30 JAN.-12 FEB.
1977
U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 9



MATCH LINE A-A

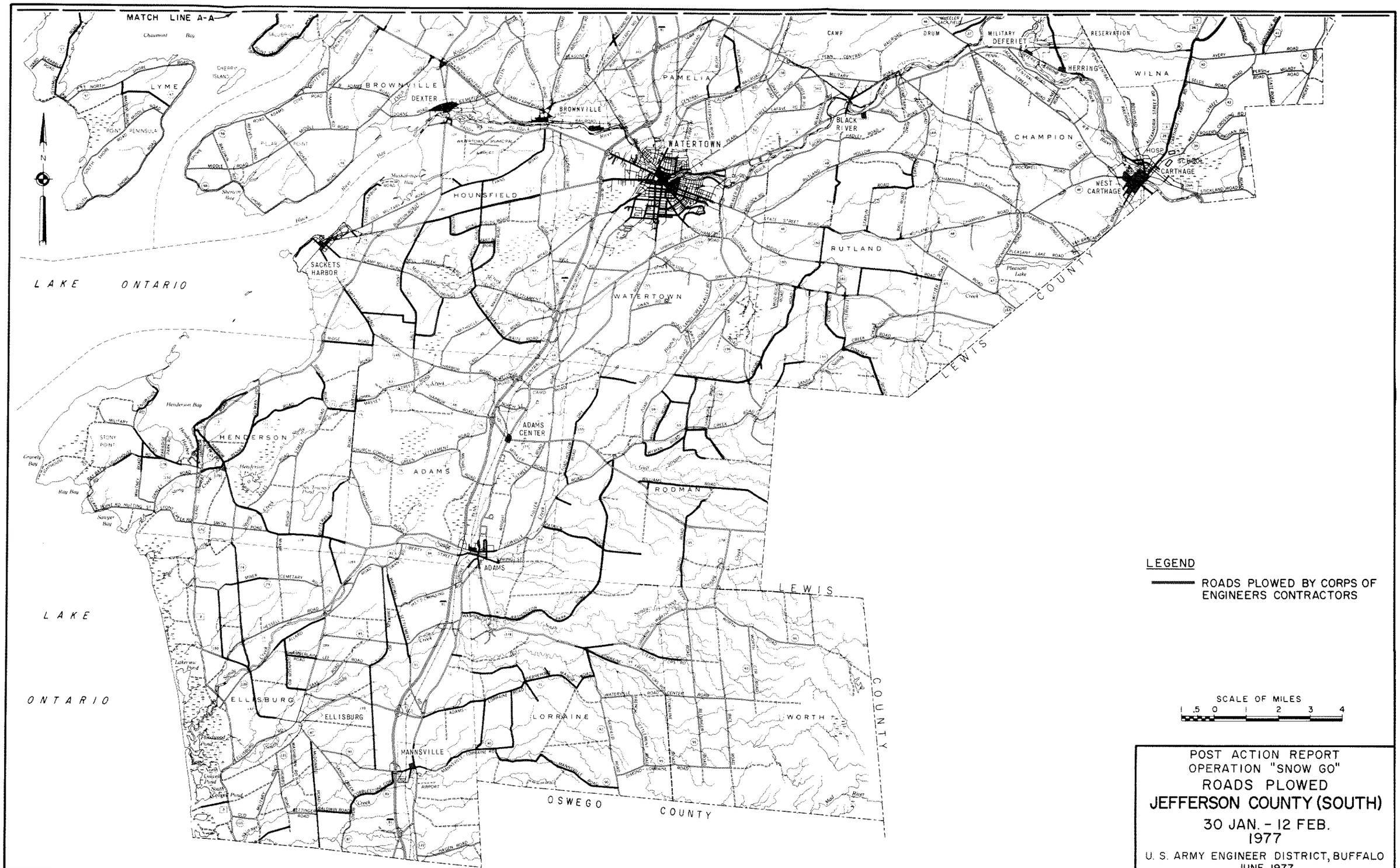
POST ACTION REPORT
OPERATION "SNOW GO"

ROADS PLOWED
JEFFERSON COUNTY (NORTH)

30 JAN. - 12 FEB.
1977

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 10



LEGEND

ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

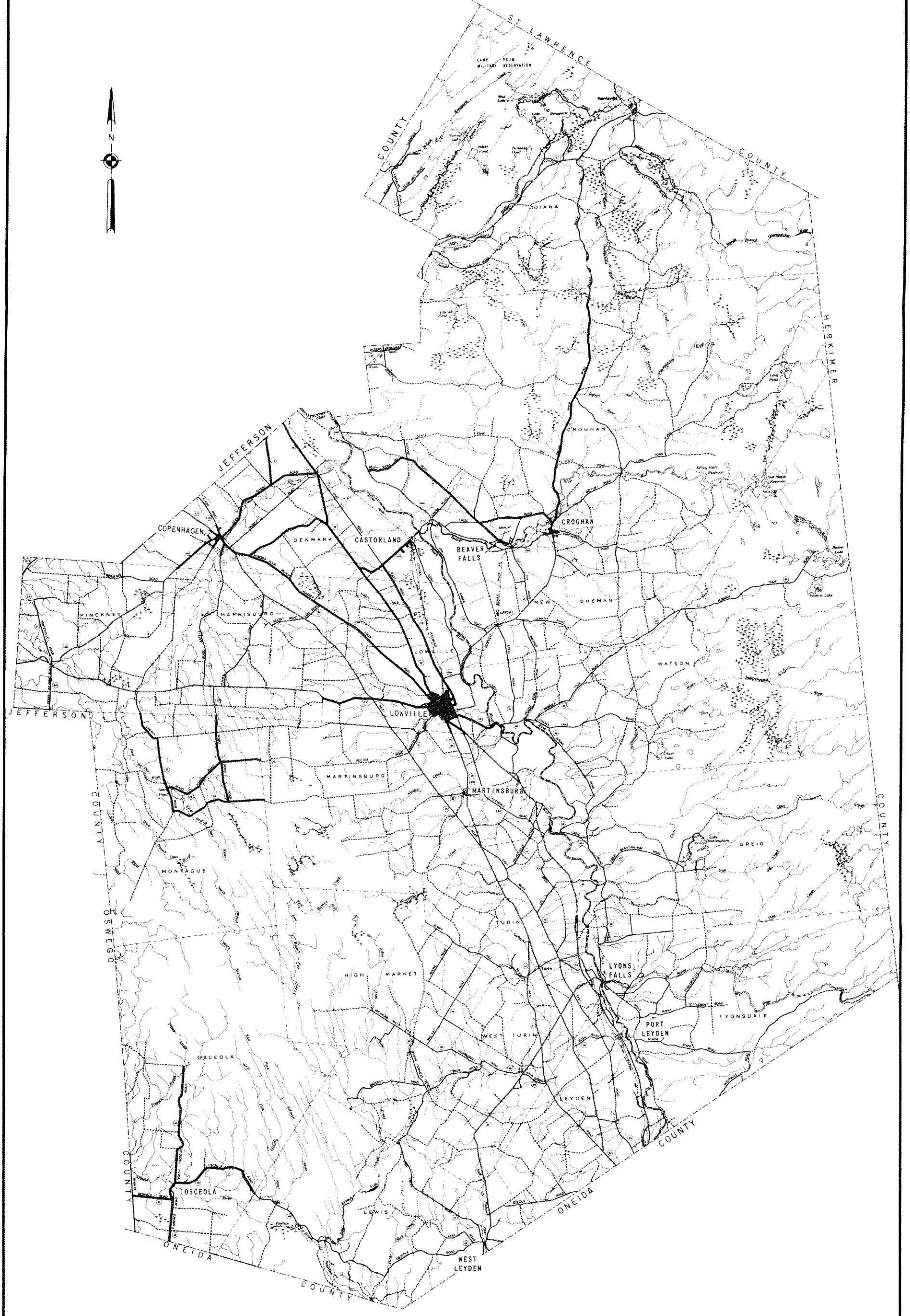
POST ACTION REPORT
OPERATION "SNOW GO"

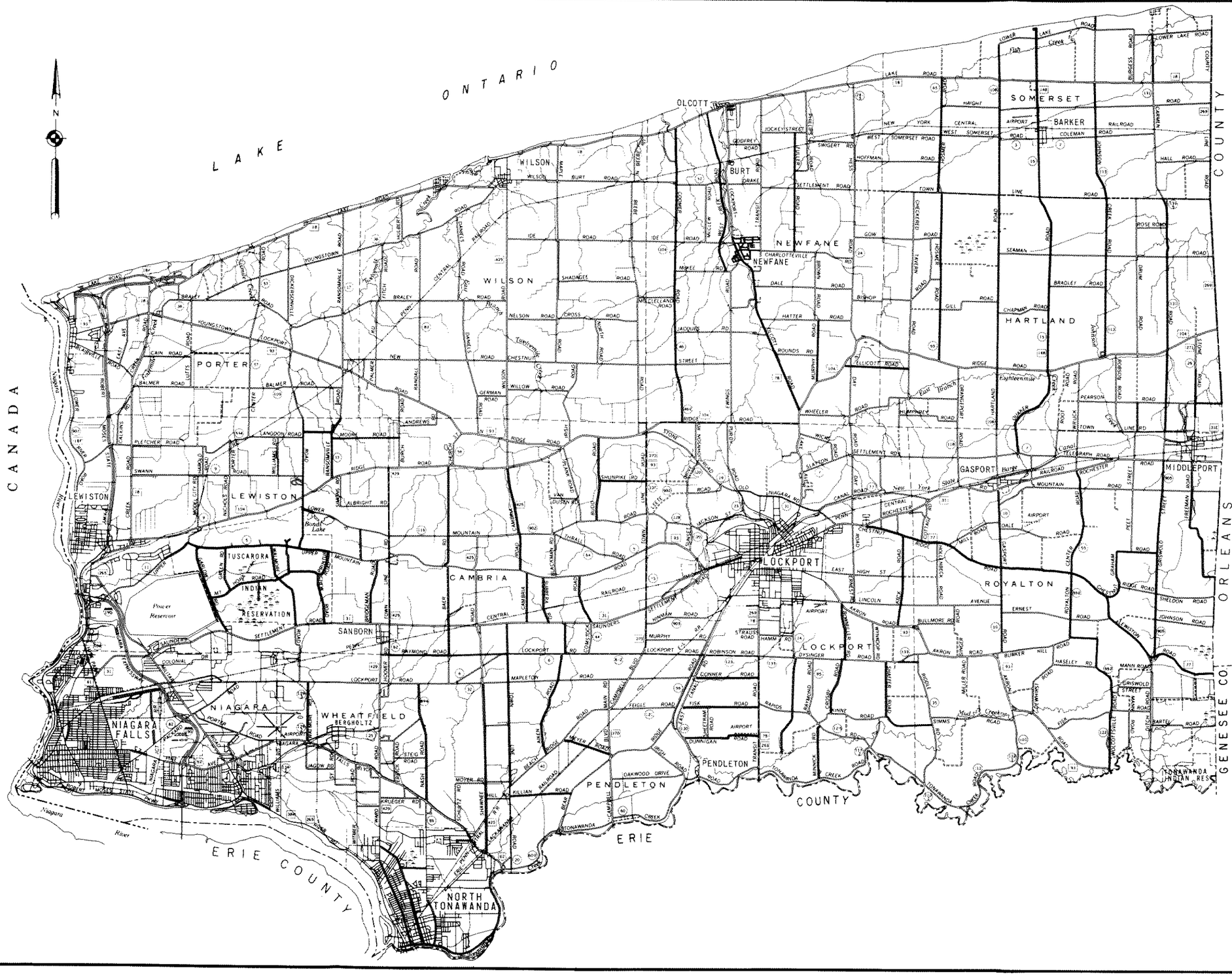
ROADS PLOWED
JEFFERSON COUNTY (SOUTH)

30 JAN. - 12 FEB.
1977

U. S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE II


N
ST LAWRENCE COUNTY
CAMP DRUM MILITARY RESERVATION
HERKIMER COUNTY
DIANA
JEFFERSON COUNTY
COPENHAGEN
DENMARK
CASTORLAND
CROGHAN
BEAVER FALLS
NEW BREMAN
PINCKNEY
HARRISBURG
LOWVILLE
WATSON
MARTINSBURG
GREIG
MONTAGUE
TURIN
HIGH MARKET
LYONS FALLS
LYONSDALE
PORT LEYDEN
WEST TURIN
LEYDEN
OSWEGO COUNTY
OSCEOLA
LEWIS
ONEIDA COUNTY
WEST LEYDEN
SCALE OF MILES
1.5 0 1 2 3 4
LEGEND
ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS
POST ACTION REPORT
OPERATION "SNOW GO"
ROADS PLOWED
LEWIS COUNTY
30 JAN.- 12 FEB.
1977
U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977
PLATE 12



LEGEND

ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

SCALE OF MILES

.5 0 1 2 3

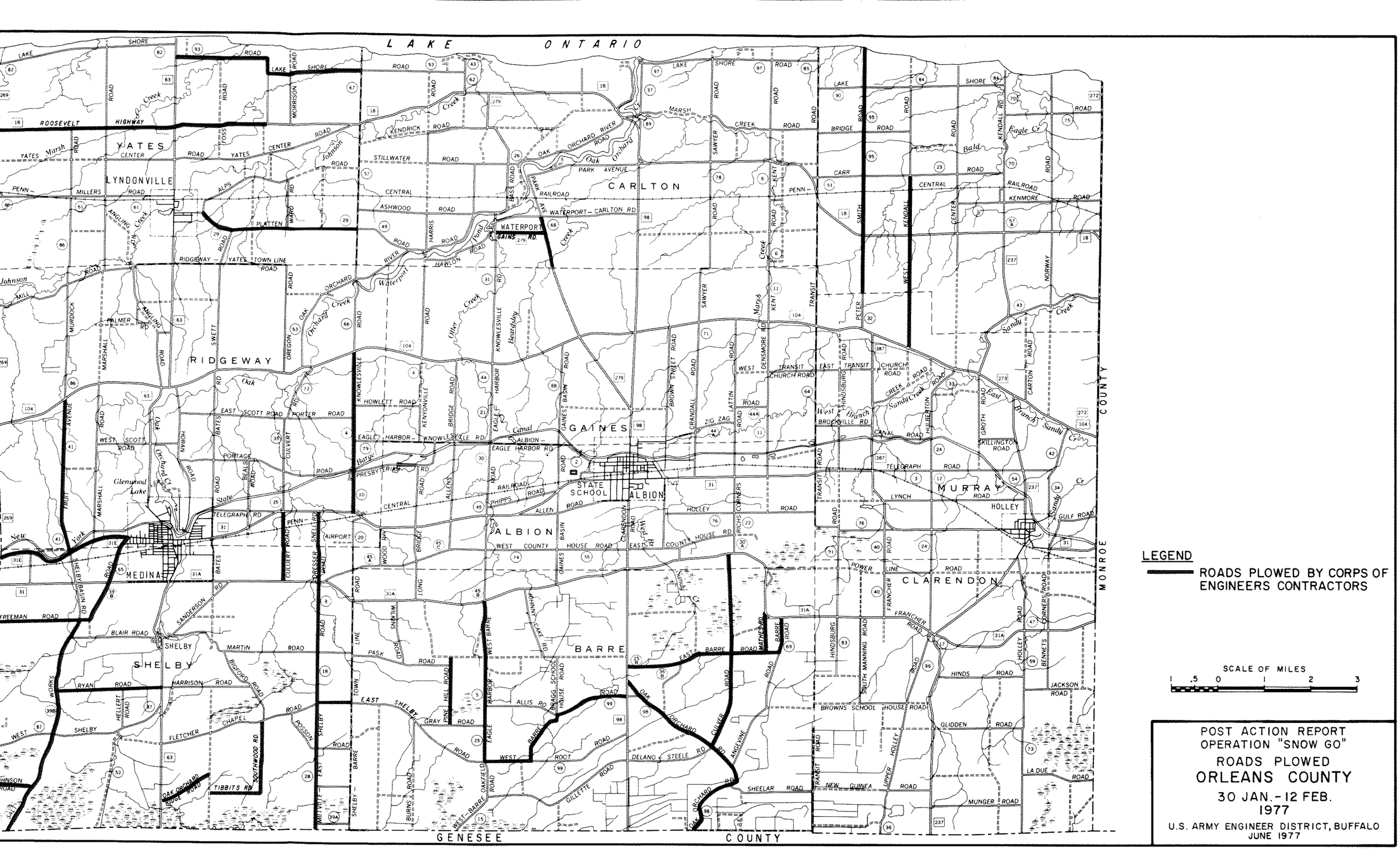
POST ACTION REPORT
OPERATION "SNOW GO"

ROADS PLOWED
NIAGARA COUNTY

30 JAN. - 12 FEB.
1977

U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 13



LEGEND

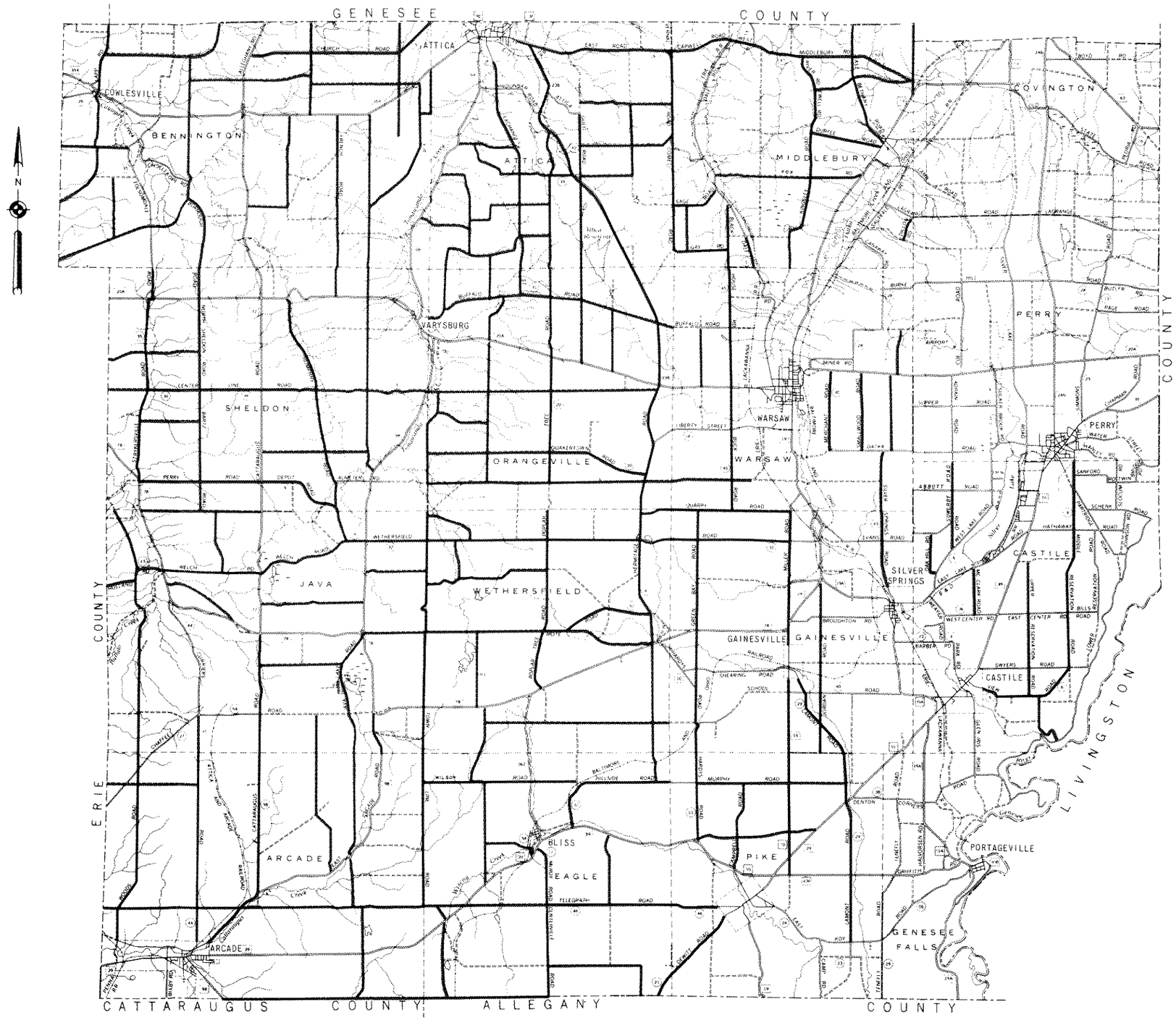
ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

SCALE OF MILES

1 .5 0 1 2 3

POST ACTION REPORT
OPERATION "SNOW GO"
ROADS PLOWED
ORLEANS COUNTY
30 JAN. - 12 FEB.
1977
U.S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 14



LEGEND

ROADS PLOWED BY CORPS OF ENGINEERS CONTRACTORS

SCALE OF MILES

1 .5 0 1 2 3

POST ACTION REPORT
OPERATION "SNOW GO"

ROADS PLOWED
WYOMING COUNTY

30 JAN. - 12 FEB.
1977

U. S. ARMY ENGINEER DISTRICT, BUFFALO
JUNE 1977

PLATE 15

SECTION IV

THE LESSONS OF OPERATION SNOW GO 1977

General

The magnitude of the snow removal was so large, the job involved was so great, and the need to get the job done was so urgent that the Corps response was heartily commended. However, as may be expected, numerous obstacles and difficulties had to be overcome. Since experience provides the firmest foundation for improving the efficiency of any organization, a review of some of the problems and how they were solved should be valuable to Corps of Engineers elements in responding to future crises which may occur. This section presents a digest of major comments resulting from a critical overall review of the operations of the Buffalo Engineer District during Operation Snow Go 1977 and its aftermath.

Although many of the following recommendations were ultimately either completely or partially implemented during the operation, they should be considered and planned for so that they are used from the beginning of the emergency.

Organization

Due to the emergency nature of the snow removal activities and the fact that most Buffalo District people could not immediately get to the office, an expedient organization was set up to handle the problems. The organization then expanded and evolved as the emergency continued. By necessity, it deviated from the normal district organization and even from the emergency operation pre-planned organization. Additionally, some employees worked in job assignments totally unrelated to their normal functional areas. In the early stages of the emergency when the full scope of problem was obscured, the lack of a formal organization chart hindered operations. Many Corps people did not know to whose attention a matter should be brought, nor specifically who had authority or responsibility for various functions.

Recommendations

1. If possible, don't divorce emergency operations from normal district management. We must be in total control of the matters over which we have jurisdiction at all times. We must adjust as necessary during the operation.

2. Faster updating of displays and recording of field work must be done so that current reports can be given regarding projects contracted, who is doing the work, estimated starting time and their status.

3. Delineation of duties and responsibilities must be specific. Always make sure each person clearly knows who his immediate supervisor is during the emergency.

Personnel Assignment

Due to the crisis nature of the situation, the best use had to be made of available personnel. People were telephoned and asked to come into the office. Jobs were then filled as employees arrived on the scene. Consequently, some people were completely unprepared and untrained for the jobs assigned to them. Again, because of the crisis nature of the emergency, and the fact that numerous personnel reported to contract sites from their homes, many individuals received little or no briefing as to the duties of their job assignments. Supply requirements were not known beforehand and field inspectors were supplied piecemeal as needs arose. At times, especially in the early days of the operation, relief of inspectors and office personnel was inadequate for a 24-hour per day schedule. Also some individuals were in the field for an extended time without sufficient funds for personal needs.

Recommendations

Keeping in mind that this was a unique emergency and the human resources availability was an unknown at the beginning of this assignment, the following recommendations are offered.

1. When possible, planners most familiar with particular geographical areas should be assigned responsibility for coordination. Construction-management supervisors should be assigned responsibility for field personnel. Field Coordinators should be assigned based upon their familiarity with the area.

2. An increase in the number of Buffalo District people presently receiving training in emergency procedures is an absolute must. The training should be extensive and participants kept informed of changes in procedures and laws. This increase of trained people would then assure that a thorough briefing, supplemented by operational instructions, would be provided to personnel involved in the next emergency.

3. More frequent Corps of Engineers, Division wide forums, seminars, and the like should be conducted, so that lessons learned by all districts can be shared and changes in laws and procedures discussed.

4. A determination of the minimum amount of supplies should be made, and then items should be stocked. A listing of additional sources should be established and kept current. Arrangements should then be made which will guarantee obtaining them on very short notice. These supplies should include:

a. personnel kits: jackets, hard hats, flashlights, clipboards, cameras and film, car signs, first aid kits.

b. office supplies: FDAA Manuals and forms, stationery, pre-addressed envelopes to the District office, and procurement kits which include instructions.

c. map supply: road maps, large detailed county maps, and note-book size maps which delineate county boundaries.

d. As we request and receive personnel from other areas, we should also look to inter-district support for equipment such as vehicles, particularly those with four-wheel drive, radios, etc. Also, TDY personnel should, if possible, come fully supplied to preclude further draining of district supplies.

5. Travel orders and, if necessary, cash advances should be provided to field personnel, particularly for those who would be away from their places of residence for a prolonged period of time.

6. Shifts should be established to allow around-the-clock operations and yet not extend the physical limitations of anyone, to include top management.

Contracts

Contracts were let within a 24-hour period from initial contact with a prospective Contractor and were written for specific road segments. The specific road assignments were given in order of priority as they were developed from local governments and provided to the Corps by NYDOT. Problems developed when road clearing requirements and priorities changed on an hourly basis, thereby making Corps normal contract change order procedures quite sluggish. Delays in the arrival of Contractors to their specific job sites caused considerable problems in attempting to coordinate the snow removal efforts efficiently. In some instances, as much as 24-48 hours elapsed between the time a contractor received his assignment and the time equipment arrived on the site. Consequently, by that time the priority of roads to be cleared changed and some of the assigned roads had already been cleared by county equipment. Furthermore, problems arose when work assignments for Contractors overlapped the same area or when priority buildings such as a fire hall, police station, or hospital were located near, but not on,

a street for which a snow removal contract was written. In some instances, because the Corps was required to contract by priority number and the fact that the requests were received in a piecemeal manner, contracts were written in such a way that it involved hop-scotching of equipment from one area to another.

Recommendations

1. Inspectors should immediately contact local officials, inform them of their presence and the areas to be worked on. Locals may help with roadblocks, traffic control, and information as to which streets have already been cleared by others.

2. It is desirable that the same field inspection team stay with a Contractor as he is awarded other contracts.

3. Greater efficiency in contract award and management could be achieved if the Corps had more flexibility in following the priorities established by the State Coordinating Officer (SCO). Recognizing that the SCO was dependent on the unorganized requests received from the affected communities, a joint effort by the SCO and the Corps to define the scope of work and pertinent priorities would permit individual contract coverage to broader geographical areas and minimize the shifting of resources to various locations.

4. More responsibility should be delegated to the field level. Field supervisors should be given authority to coordinate the entire Corps effort within their areas. Consideration should be given to decentralization of contracting authority.

Corps Contracts Being Supervised by Others

The contracts let for clean up in ConRail areas were supervised by ConRail personnel. Confusion occurred regarding reporting of work being accomplished for ConRail primarily because of the many sites to be cleared and because ConRail officials initially expected Corps supervision of these efforts. A 10 February meeting between ConRail executives and the District Engineer, established a more satisfactory reporting procedure. The Corps of Engineers also awarded 18 contracts to small business firms for contract supervision by the City of Buffalo. These businesses included a number of minority firms which had equipment very adaptable to small assignments under City inspection.

Recommendations

1. A meeting at the start of an operation is necessary when another organization will be supervising the activities of Corps Contractors. This meeting would provide ground rules in reporting procedure, method of coordination, and reaction to changed conditions.

2. A coordinator should be assigned from the first day of operations.

3. A field inspector should be assigned to make spot checks and to investigate problem areas.

Communications

Difficulties in communications were perhaps the problem of the greatest magnitude encountered throughout the snow removal emergency. In particular, communications between personnel in the Control Center and the field was virtually impossible at times. Field inspectors attempting to report on work in progress or modifications to work contracts found it necessary to place several calls to the Control Center before getting through and often they were still unsuccessful.

The telephone system was so overloaded that personnel inside the District office found it difficult to make necessary outgoing calls. The shortage of Corps automobiles equipped with two-way radios further complicated the communication problems. Field access to telephones at night was a problem in some areas. Although half of the 80 portable, two-way FM radios and five base stations obtained by the Corps for the emergency were utilized in augmenting existing communications, they were not entirely satisfactory because of their very limited range. Communications were further hampered by the failure to familiarize many in-house personnel with the proper transmittal and disposition of messages. Often, even though field agents contacted the switchboard or radio room, messages were not relayed to the pertinent individuals.

Recommendations

1. Once additional telephone lines are brought into the District office, additional telephone jacks should be installed in the location of the Emergency Operations Center and any other area that might be used in an emergency to facilitate rapid expansion of telephone service.

2. A more extensive use of Corps field installation radio networks should be explored. Two-way radios should be mandatory equipment in all Corps of Engineer vehicles. They should be maintained in good condition at all times. Instructions for their use should always be available, and if possible, briefings or training sessions scheduled routinely for all personnel who might possibly be called upon to operate them.

3. Precise instructions on dissemination of information received by radio or telephone operators is an absolute necessity. These

operators must transmit the message request along the proper internal lines of communications. One way to mitigate the problem is to have in-house runners carry internal messages rather than further snarl telephone lines.

4. In order to keep the "troops" updated on the entire operation, periodic internal status reports, including changes in policy and direction are essential.

Audits and Payments

Invoices for the work accomplished were received from the Contractors. These invoices were compared against the daily reports filed by the field inspectors and either oral or pencilled agreements as to equipment rates. If all three agreed, payment was made. Difficulties in following this procedure were encountered in these areas:

1. Invoices included costs that could not be verified;

2. Some inspectors' daily reports were incomplete; and

3. The rental rates that were set resulted in some low rates, some reasonable ones, and some which were quite high.

Recommendations

1. Rates for rental of equipment should be currently available and updated. We should realize that many different sizes and capacities of equipment are available and the use of standard rates is difficult.

2. More estimating personnel should have been brought in or those in the field asked to remain in the office to prepare equipment

rental rates. Explicit information as to what is or is not included in these specific rates should be set down in writing.

3. Responsibilities for telephonically negotiated procurements should have been delegated to a greater number of qualified people, thus precluding hasty agreements made in the wee hours of the morning after spending many hours at the job.

Public Affairs

The Public Affairs Office usually provides considerable news coverage, but has a tendency to become too statistical.

Recommendation

1. The Public Affairs Office should have personnel in the field to develop the most interesting news releases concerning the emergency to include human interest stories.

2. Photos of Corps of Engineers activities should be provided to the news media.

Summary

Though the problems met by the Buffalo District, Corps of Engineers, during the emergency activities were not negligible, they were not so serious as to prevent fulfillment of the District mission. Uncontrollable circumstances such as the fact that action was needed immediately and the fact that little or no time for organizing was available were overcome through individual initiative, hard work, and dedication of the employees involved. While some inefficiency existed, the District was able to do more than a satisfactory job. This report is merely a single component of the overall effort by the Buffalo District to review its emergency planning, to update it in the light of experience gained during the

"Great Blizzard," and therefore to be better prepared at all times for national emergencies of all types.

The lessons learned as outlined above were immediately put to use. The record snowfall in the Buffalo area prompted the Buffalo District to immediately start to investigate and build temporary emergency flood control projects. The Corps expended about one million dollars in carrying out its new mission called, "Operation Runoff." Some aspects of the mission operated 24 hours a day, 7 days a week.

Again, the majority of the District Personnel were placed into a pool to do a job outside of their normal duties. However this time, because time allowed it, the operation was completely planned, an organization chart was developed, and individuals were assigned jobs that fell as close as possible to their normal areas of responsibility. Thorough planning and briefings were given to office and field personnel. Both telephonic and two-way radio communication capabilities were increased many fold. When possible, Contractors hired to build projects had to participate in bidding procedures to receive a contract award. Sufficient numbers of inspectors were assigned and most people were relieved after a reasonable length of time on each shift of work.

APPENDIX A

MISCELLANEOUS PHOTOGRAPHS

APPENDIX A

MISCELLANEOUS PHOTOGRAPHS

Appendix A consists of a number of miscellaneous photographs. These photos depict how the blizzard and its after effects changed everyone's life style for a short time. They typify the problems that confronted the officials in their job of opening roads. The photos show the many types of snow moving equipment utilized, the height of some snow banks, and generally show conditions as they existed at that time. Photograph credits are designated as follows:

Buffalo Evening News	B.E.N.
Courier Express	C.E.
U.S. Army Corps of Engineers	Corps
N.Y.S. Dept. of Transportation	D.O.T.
The Associated Press	A.P.
Watertown Daily Times	W.D.T.

Photo 24 - What do we do now? This question must have been asked hundreds of times during the storm. Thousands of cars and trucks were just abandoned when they could no longer proceed because of the deep snow. (1/31/77 B.E.N.)

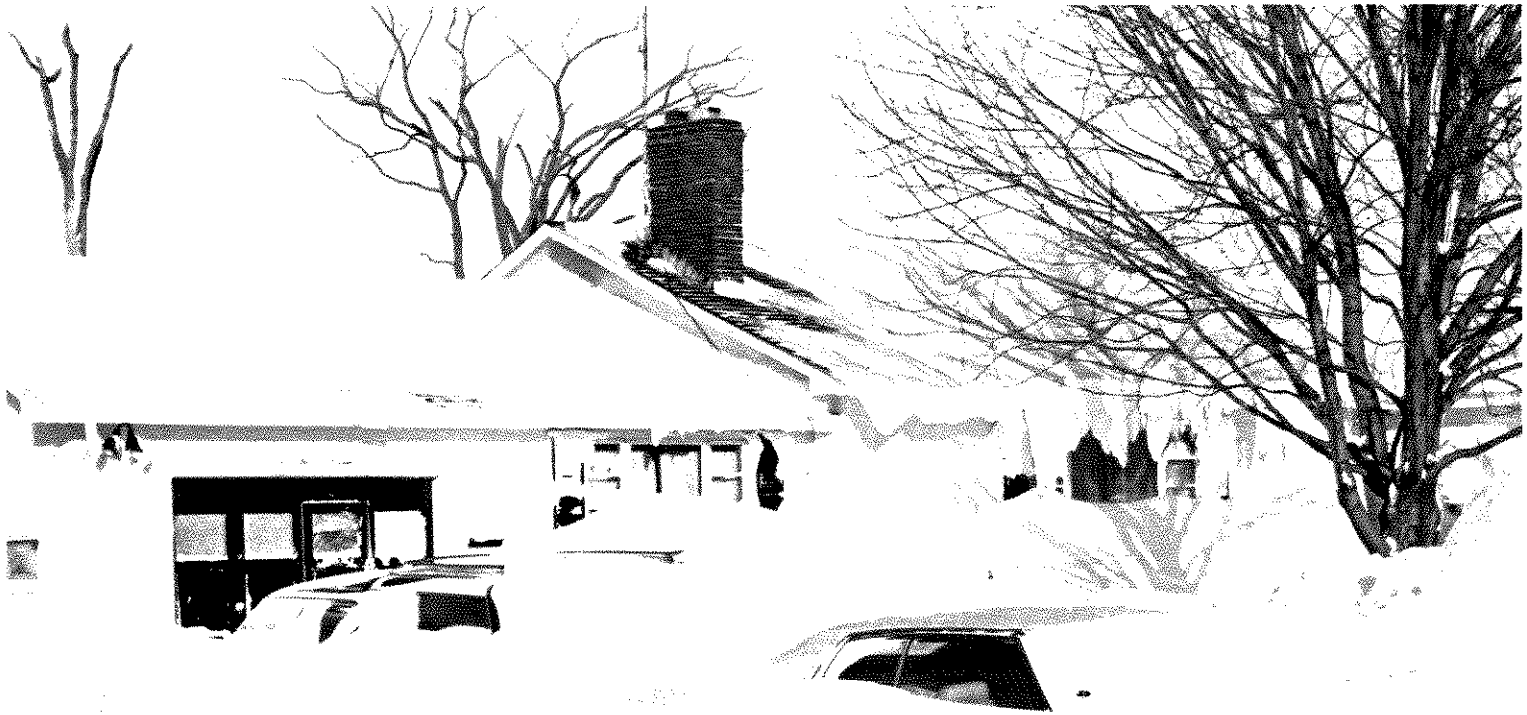


Photo 25 - Sun shines on snowdrifts which have all but buried automobiles parked in a residential area of Watertown, New York. (2/1/77 W.D.T.)

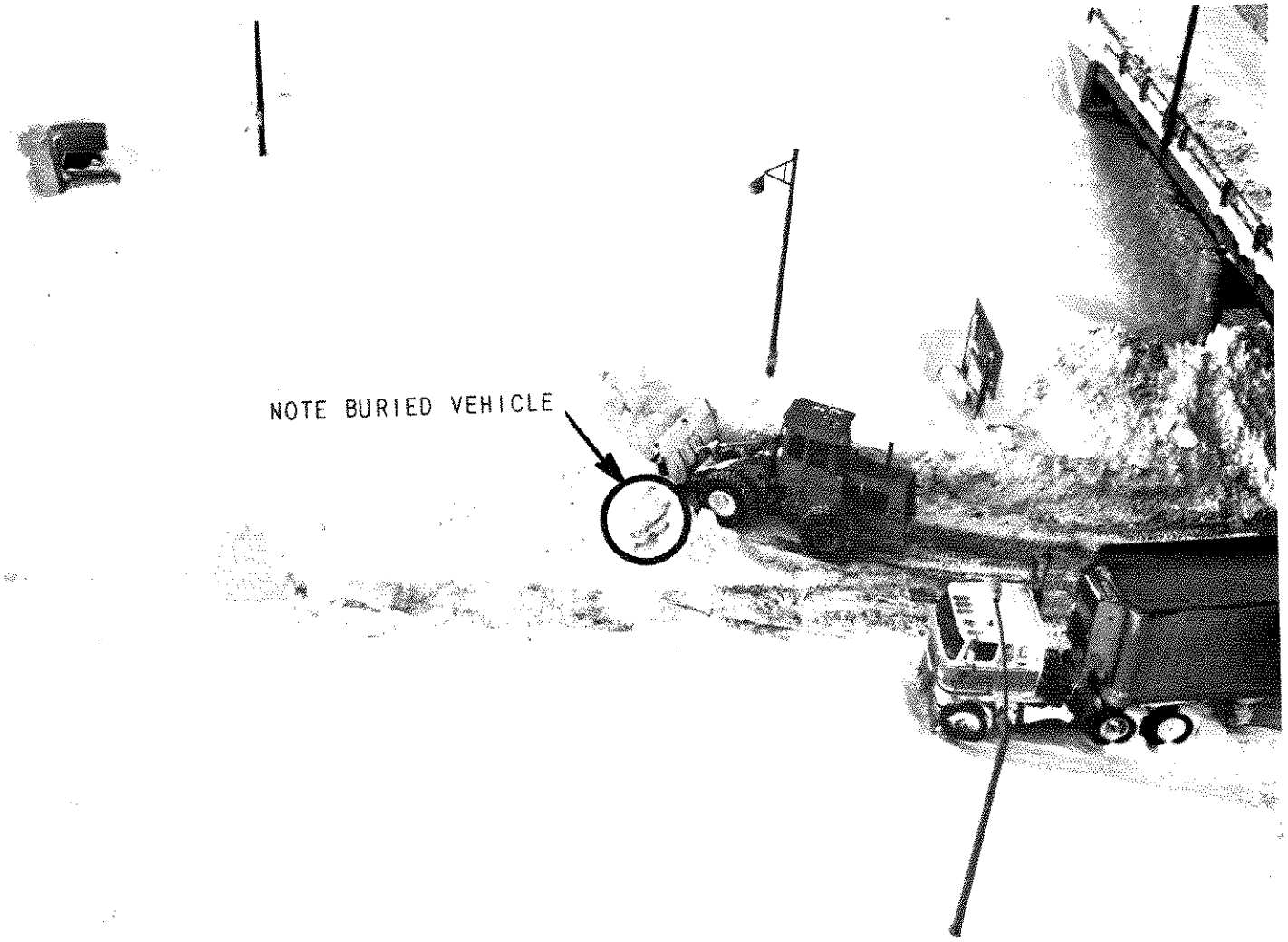


Photo 26 - Emergency snow clearing operations being conducted in vicinity of Fuhrmann Boulevard on the south side of Buffalo, along Lake Erie. Typical of the many problems confronting the cleanup crews is the sudden discovery of a buried automobile in the center of the road. (2/2/77 Corps)

Photo 27 - Corps of Engineer Inspectors discuss snow clearing operations with a heavy equipment operator in the City of Buffalo. (2/4/77 Corps)

Photo 28 - Badly needed help arrives by air. An Army C-5 Galaxy airlifted much needed snow-fighting equipment from New York City to Niagara Falls, New York Airport. The equipment loaned by the city of New York arrived early on 2 February and was put to immediate use. (B.E.N.)

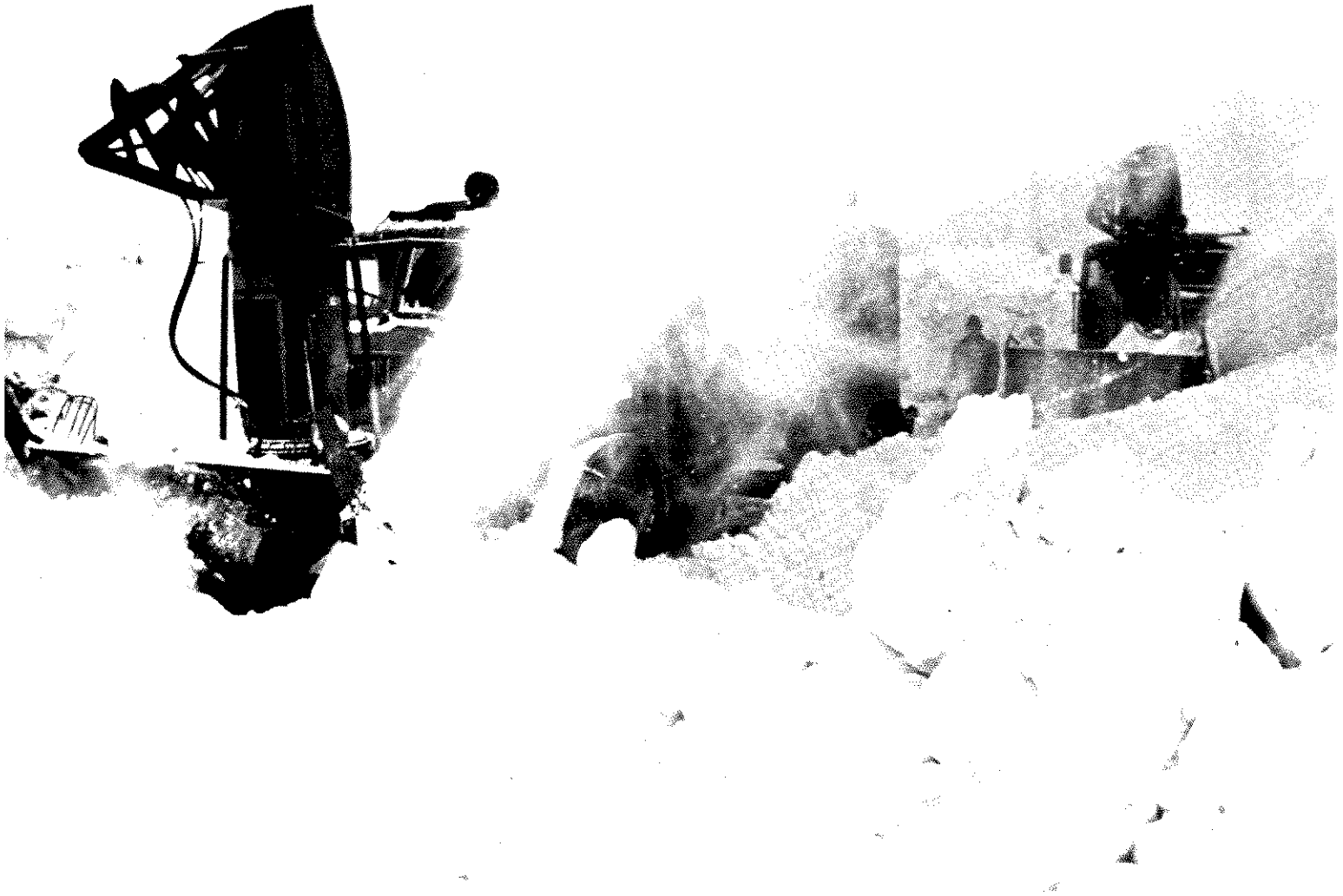


Photo 29 - Two New York City snow blowers work their way through four-foot drifts that block one of Buffalo's main four-lane roads along Lake Erie. Some drifts are so high that a bulldozer must push the drift aside so it will be low enough for the blowers to work. (2/6/77 A.P.)

Photo 30 - Pictured above are some of the troops and equipment rushed to the Buffalo area by U.S. Airforce planes shown in the background. (2/2/77 Corps)

Photo 31 - Many Watertown residents climbed up on their roofs to clear away as much snow as possible thereby preventing the roofs from caving in under the heavy snow and ice loads. (2/3/77 W.D.T.)

Photo 32 - Automobile being dug out of a snow bank near Rodman, New York. Vehicle was struck and overturned by a plow during the height of the blizzard. (2/10/77 W.D.T.)

Photo 33 - These two New York State Department of Transportation plows were completely bogged down and abandoned for days until the blizzard subsided and they could be dug out. (2/77 D.O.T.)

Photo 34 - Height of some drifts in the northern counties was so great that they had to be shoveled down to a level where the large rotary snowplows could clear the roads. (2/77 D.O.T.)

Photo 35 - Snow clearing operations being directed by a Corps of Engineers Inspector within the City of Buffalo. (2/4/77 Corps)

Photo 36 - Another example of the different types of equipment utilized during the snow moving project. (2/77 D.O.T.)

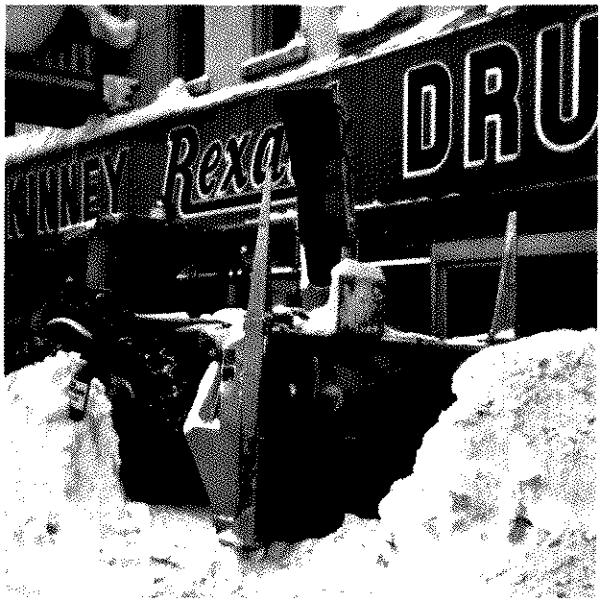


Photo 37 - An unusual sight - a rotary snowblower removing snow from sidewalks in the business district of the Village of Adams, NY. (2/77 D.O.T.)

Photo 38 - Rotary snowblower performing the difficult task of clearing a drift covered roadway in Jefferson County (2/77 D.O.T.)

Photo 39 - Jefferson County resident opening a path from her home to the road. (2/77 D.O.T.)

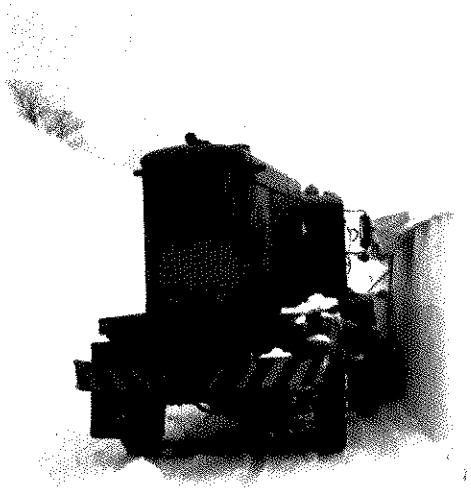


Photo 40 - Depth of snow is readily apparent when compared to large DOT snowblower clearing a Northern New York State highway. (2/77 D.O.T.)

APPENDIX B

SNOW FLAKES

APPENDIX B

SNOW FLAKES

Appendix B contains a short synopsis of a number of newspaper articles that appeared in the Buffalo Evening News, Courier Express, and the Watertown Daily Times.

The intent of this section is to give an all-around view of the many events which transpired during those few unforgettable days. These tidbits touch upon the many heroes, hard workers, acts of kindness, tragedies, and near tragedies that took place. They tell of many who came from near and far to help, of those who opened their doors, of those who gave so much, and unfortunately of the very few who only took advantage of an already bad situation and made it worse by looting or instituting price gouging. They tell of the many new weather records set, of the funny things, and of the sad things that happened. They tell of the unbelievable amounts of money spent on snow removal and the large losses suffered by farmers and businessmen. They also tell of the dignitaries who visited the affected areas, but most of all they tell of THE WAY IT WAS, during the "Blizzard of '77."

SNOW FLAKES

A Buffalo City Judge visited the Erie County Holding Center and at one point, released without bail some 30 defendants accused of looting during the storm. This was necessary because most of the courts in the area were closed for a week and the jails were swelling.

Hard hit by the Blizzard of '77, 16 of the 25 towns in Erie County joined the city of Buffalo in declaring states of emergency and banning all but essential traffic.

For thousands of Western New York school children and high school and college students the blizzard of Friday, January 28, meant as much as two weeks of unplanned vacation. Most schools were already closed as a result of a winter storm which had swept Western New York the previous Wednesday night. It wasn't until February 7 that most schools and colleges reopened, while most Buffalo public schools reopened on February 14.

During the emergency period the Buffalo Police Dept. answered 9,650 calls for service and the Fire Department answered 1,570 emergency calls. The fire fighters made an incredible save by stopping a three-alarm fire at Whitney and Virginia on the night the storm hit. Fears of a "Chicago fire" - a blaze that would destroy the city - developed as eight dwellings caught fire in the blizzard's 70 mph wind gusts. Fire engine after fire engine became bogged down in snow or blocked behind abandoned cars and trucks on narrow streets. Firemen had to drag the hoses on foot to fight the fire. Before it was over, eight homes were destroyed or damaged, but the heroic efforts of the firemen and others saved the neighborhood.

Near Camp Drum, a 52-ton Marine personnel carrier flattened a State Police car buried under 5-1/2 feet of snow. A sub-compact car was marooned alongside it. One report said, "they're both kind of squashed."

A half dozen persons stranded on farms in Lewis county said they were boiling snow for water, and one resident said he would have to kill a calf for food.

A number of women who could not get to hospitals had babies at home without incident.

A young man and his six year old daughter died of carbon monoxide fumes when he started a snow blower in a closed garage. The fumes killed him in the garage and his child in her bedroom.

Another young man was killed in Wyoming County while attempting to free his car from a snow bank. A truck hit his auto. His car then ran over him.

After struggling to keep his driveway cleared, a northern New York resident kept an approaching snowplow from winging the banks back into the drive. He stood in his driveway with a shotgun motioning the operator around his driveway. The driver complied, lifted the wind, and went around.

Three reindeer from the Buffalo Zoo took advantage of the giant drifts and easily jumped the fence for a short-lived vacation from captivity. All were sighted within a mile and brought back in after being tranquilized.

Approximately 66 inches of snow fell on Watertown between 28 Jan '77 and 1 Feb. The total snowfall for Jan. totaled 90.8" breaking the old record of 79.4" set in 1940. The total accumulated snowfall at the end of January amounted to 181", and well over 200" at the end of April. The wind chill factor during the blizzard ranged from -35°F to -47°F at times.

A seven member family who live in a small house near Medina, NY found themselves with a house full of 50 people the night the blizzard hit.

A law enforcement officer's nightmare was filling out an accident report involving 50 cars and 113 people. This occurred on Route 31 near Albion, NY.

Many ambulance crews ignored the danger of going into the elements during the blizzard. They responded to the calls as quickly as possible constantly battling the blowing snow and high drifts. One crew carried a snowmobile with them so that they could reach a woman in labor.

Three days after the storm first hit, a number of hotel-type establishments, which were housing hundreds of stranded people, had begun rationing food in the Watertown area. Lewis County officials said at that time they were considering appealing to Fort Drum for C-rations if the situation continued to worsen.

A number of husbands who were stranded complained that their wives were suspicious and refused to believe conditions were as bad as they said.

Four pedestrians on State St. in Watertown were startled when they saw a motorcyclist appear and then quickly become a fading figure in the storm.

Two Lowville, NY boys were buried alive when a large overhanging snowdrift they were playing under fell on them. They were dug out by a neighbor and parents and then taken to a hospital where they were treated.

One of the largest temporary bedrooms in Watertown was located in the State Office Building. The "bedroom" was actually a second flood lobby, dotted with at least 100 people in green army sleeping bags.

About six days after the blizzard first started the Salvation Army estimated they had fed about 67,000 people, issued warm clothes to an estimated 4,500 persons and housed 851 people.

A Lewis County man, on storm watch, had just parked his car with him inside, when his car was run over by an Army armored personnel carrier. No one was hurt, but the car was a total loss.

The weather was so bad at Buffalo that their Chief Meteorologist, James Smith, said he was retiring from the National Weather Service in February.

Records kept at Mannsville, NY in Jefferson County indicated 318.7 inches of snow had fallen from 7 Nov 1976 to 11 Feb 1977. The Blizzard of 77 dumped 74.5 inches on Mannsville. The most snow in a 24-hour period was 56 inches on 29-30 Dec 1976.

Even the Marines had a tough time navigating through the blizzard. A convoy transporting 84 Marines became stranded near Antwerp, NY shortly after the storm began. They were taken to the village fire hall where they spent the night as guests of the village. These Marines along with other military personnel more than returned this kindness in the days that followed by their untiring efforts of mercy missions and snow removal operations.

When a rotary plow driver working an area with drifts 12 feet high was asked if he was concerned about hitting buried objects, he said he wasn't worried about hitting a car, especially small cars. With a straight face, he said, "Volkswagens are okay, they go through the rotary blades."

One Watertown family prepared stew for their dinner the night the storm started, they later found they had 53 more plates to fill before the evening ended. Now that's hospitality.

A common phrase heard throughout the affected areas from officials and volunteers who worked many consecutive hours manning radios, phones, cooking, etc. was, "there was no night, no day."

The following are some of the new weather records established at the Buffalo Weather Station:

Between 26 Dec '76 and 8 Feb '77, Buffalo had 45 consecutive days of below freezing temperature.

Between 20 Dec '76 and 10 Feb '77, Buffalo had 53 consecutive days of a trace or more of snow.

Lowest Average Jan temperature in 107 yrs. of record $13.8^{\circ}F$ previous record was $14.1^{\circ}F$.

Greatest one month snowfall - Jan '77 - 68.3", old record Dec '76 - 60.7".

Greatest snowfall for one season, 1976-77 = 199.4", old record 1909-10 = 126.4".

Most snow on ground = 4-7 Feb '77 = 42".

Grand Island, a community surrounded by the Niagara River was cut off from the mainland when the bridges at both ends of the Island were shut down. Erie County Sheriff's Deputies braved wind and driving snow to shuttle snowmobiles over the bridges to find insulin for those who were ill.

Some of the larger plants in the Buffalo area sheltered numerous people overnight. The Bell Aerospace plant in Wheatfield housed 1,600, the Ford Woodlawn Plant had 1,800 and Memorial Auditorium hosted another 400. About 3,000 workers at the Harrison Radiator Division Plant in Lockport spent the night in the factory.

Many people who had to take refuge in local bars report that it was like New Year's Eve.

An Albion, NY couple provided shelter for 73 stranded persons over the blizzard week-end.

On Monday morning a local radio station in Niagara Falls, NY announced that the Salvation Army was running out of food. By 7 p.m. that evening, $17,000 had been pledged to the Salvation Army to help storm victims.

A minister who hopes, somehow, to keep in touch with 200 persons who stayed with him at the church said, "I think an interdenominational prayer service is what we need to get us together with God."

Over 500 National Guardsmen augmented city and State workers. They included the entire 152nd Engineer Battalion, elements of the 221st Engineer Group and elements of the 42nd Aviation Battalion.

One example of the amount of milk being dumped by the farmers in Western New York was a cooperative report that only three tankers of milk arrived instead of the normal 40 tanker truckloads.

Governor Hugh Carey was asked to send in helicopters to search for persons, alive or dead, who may still be in some of the hundreds of vehicles abandoned in the city and suburbs. Seven bodies were found in cars by Saturday morning.

Millard-Fillmore Hospital in Buffalo noted that between 4 and 7 p.m. Friday it provided free meals for 1,400 persons other than patients.

On 29 January, the Buffalo Courier Express reported that it was the first time since 1834 that weather interrupted its publication.

When a Cheektowaga, NY woman saw the storm coming, she went to her kitchen and whipped up enough soup, goulash and sandwiches to feed 120 persons who found shelter in a local Volunteer Fire Company building.

Unofficial estimates place the number of abandoned vehicles in Erie County at 3,500, while approximately 13,000 persons were sheltered in public buildings, hotels and taverns during the storm.

An advance party of a 300 man Army airborne engineer task force from Ft. Bragg, NC arrived at Niagara Falls Air Force Base on 2 February aboard a huge Air Force C5-A transport.

On 9 February, Salvation Army officials stated they had distributed through their Buffalo, Tonawanda, Lockport, Dunkirk and Niagara Falls shelters 46,664 food packages, fed meals to 56,448 persons and another 13,300 in out-stations. They also provided mobile canteen service for 13,300, distributed clothing to 5,797 and provided emergency housing for 2,430.

Over 500 New York National Guardsmen assigned to the Buffalo area were deactivated at midnight on Thursday 10 February.

A Buffalo newspaper reported that, the city has lost track of literally thousands of cars that were towed away during the snow emergency. "They weren't necessarily stolen, just misplaced," said the article. Approximately 4,400 autos had been towed.

Jefferson County estimates state that at least $500,000 in milk was dumped each day during the emergency.

Armored personnel carriers loaded with food, medicine and baby formula lumbered loudly through Watertown, NY, Monday night, 31 January, as the heavy vehicles set out for nearby towns that were short of supplies. Reports of food and fuel shortages were becoming increasingly common as the storm continued.

On 2 February, at 7:00 a.m., the travel by auto ban was lifted for five hours in the Watertown area. This was done so that many of the 1,900 stranded travelers could leave the city, so as to lessen the demand on scarce food and fuel resources.

On 2 February, an advance party from the Corps Buffalo office arrived by helicopter in Watertown. They were followed by a five-man delegation from the Corps New York District office who directed the cleanup operations from an emergency relief headquarters located in the State Office Building.

On 12 February an estimated 160 tons of Buffalo snow were delivered to Northern New York. It was the only way a Gouverneur company could get 18 badly needed gondola cars.

The phone rang at 3:30 a.m. in the sales office of L.L. Bean, Freeport, Maine. The caller from Buffalo. "Can I order three pairs of long johns?" he asked a salesman.

A 34-year old polio victim, who uses crutches to walk, manned his four-wheel-drive vehicle over a sporadically interrupted 96-hour stretch during the blizzard. He lugged food and medicines to shut-ins, helped police chase looters, rushed a heart-attack victim to Columbus Hospital, and, when his vehicle got stuck in a drift, shoveled it out by hand.

The only school to remain open and hold classes right through the blizzard of '77 was the Gow School in South Wales, NY. The school has 20 faculty members and 105 boys. "We couldn't close, most of the boys live in distant places and besides, we were snowed in." Classes were held every day including Saturday and Sunday. The school has not closed once in the last 51 years because of snow.

National Guard troops reported, "The people on Grand Island were so glad to see our men, they were chasing them down the road with thermoses of coffee and food. It got to be a safety hazard. We had to ask them to keep away from the machines."

A taxi company asked help in locating three of their cabs which had been missing for one week.

The entire contingent of 31 Coast Guard personnel, including 3 women, were isolated at their Buffalo Base off Fuhrmann Blvd. from 26 January to 6 February. The relief crew took three days to clear the last mile of road to the base.

Although many funeral services were conducted during the week of the storm in spite of the weather and driving bans, very few actual burials took place. Most caskets were stored by funeral directors and cemeteries until conditions allowed actual burials later in February.

The Westchester County Executive returned half of their county's $103,000 emergency hiring money to the Federal Government to be reassigned to Buffalo.

The Buffalo downtown YMCA opened its rooms and showers to women for the first time ever during the storm.

The zero visibility that the blizzard brought occurred so quickly that it trapped Buffalo Airport snow removal crews in their plows while they were working on the runways. Five plows were abandoned as the crews got into one plow and slowly worked their way back to the garage. An airline mechanic emerged from a plane parked on the ramp and got lost on his way to the terminal. He meandered onto the runway and into one of the abandoned plows.

National Guard personnel operating heavy duty open cab snow removal equipment, had to change shifts every 12 to 15 minutes during the extreme cold periods. "Warm Up" trucks stood by so that they could hop in, warm up, then relieve their relief.

Sample answers given to inquiries concerning the driving ban; "Yes, you can drive your wife to the hospital to have her baby; Yes, you can go to a funeral, but not to a wake; Yes, the wedding can go on with the guests arriving by car."

The only serious accident reported, concerning the clearing of hundreds of street miles, occurred on 5 February, when a pedestrian was run over and killed by a truck full of snow while it was backing down a street.

A Hamburg snowmobile dealer tells the story of a man coming into his store during the height of the blizzard on Friday and asking, "how much does this cost?" pointing to a snowmobile. "What else would I need to drive it? Any special clothing? Special equipment?" After he was completely outfitted he reached into his pocket, peeled off $2,000, and roared off into the night on his new snowmobile.

Shovel off to Buffalo - about 3,500 all-purpose shovels were airlifted into Buffalo from Columbus on 3 February.

There were 100 residents still isolated in Concord, NY, an Erie County town 25 miles south of Buffalo, 11 days after the storm first hit.

After President Carter gave his major disaster declaration and the Corps completed its contracts, Buffalo hired three firms to supervise the remaining clean-up of the city. The cost of supervision was estimated at $270,000.

There were many tales of human kindness during the five days of sometimes zero-visibility weather that followed, but there were also stories of irresponsible behavior.

The rash of looting in the east side of Buffalo spread downtown, prompting a local gun shop operator to hand out signs reading, "Trespassers will be shot, survivors will be prosecuted." Thieves took advantage of the immobilized city and stripped abandoned vehicles, broke into homes and used smash-and-grab tactics on shops, police said. Gangs of youths took furniture, beer, radios, cigarettes and other items. At least 100 persons were arrested. It was estimated $200,000 worth of goods were stolen.

One report told of a neighborhood grocer who reportedly charged $2.50 for a half-gallon of milk.

In spite of the fact that officials and volunteers tried to do the very best they could under the circumstances, many phone calls conveyed only awful name calling.

A few of the travelers stranded at Greater Buffalo International Airport report they were charged $10 per person to be driven across the street to local motels. The taxi drivers would not leave until they had five in the car.

The Buffalo Fire Department responded to seven false alarms Friday, 20 Saturday and 15 Sunday.

Police reported that some truck drivers in the south end of Buffalo were toting shotguns around to protect their stalled tractor-trailers.

The Buffalo Fire Department reported the loss of radios and microphones from mired trucks it had been forced to leave at fire scenes during the storm.

More than $1,500 worth of medical supplies were taken from a stalled ambulance.

A downtown bar stopped selling individual drinks and began selling by "the bottle only" - $16 a bottle.

A downtown hotel doubled the price of its $20 rooms and doubled the cost of the standard 15-cent phone call from the rooms.

Some private taxicab operators quoted "take it or leave it" prices to their passengers.

A private plow operator asked $50 to clear an elderly couple's driveway. They refused, and another operator came by and cleared the driveway in five minutes, free of charge.

Examples of price gouging - bread $1.00 a loaf, eggs $2.50 a dozen, cookies $1.50 a package.

Towing charges as high as $65 to $80, which seem exorbitant until looking into the facts which revealed that it occasionally took 2-1/2 hours to dig out and deliver the cars or that a service man was utilizing a 40 ton wrecker.

A few residents complained of being charged 70 cents to $1 a gallon for gasoline. The normal cost of regular gas was about 60 cents. A few others complained that unless you were a regular customer you couldn't buy any gasoline at certain stations.

Because of the severe winter, 33 of Buffalo's 79 pieces of snow removal equipment were out of service the day before the blizzard hit.

A Buffalo resident complained about the jokes Don Rickles and Johnny Carson made about the Buffalo area. He admitted the sun doesn't shine over Buffalo as much as other locations, but he also stated the Buffalo area is not plagued by mud slides, brush fires, earthquakes, smog problems, fresh-water shortages, serious floods, hurricanes, tornadoes or shark attacks.

Two fires in Niagara Falls, NY on Friday evening, 28 January, and Saturday morning, 29 January, resulted in 20 fire fighters being taken to the hospital with injuries suffered while battling two multi-alarm fires. All were treated for frost bite, exposure or smoke inhalation.

A report from Columbus Hospital on Niagara Street in Buffalo stated, "People have been walking on the tops of cars because the drifts are so high."

A Cheektowaga motel owner reported they housed four to six guests per room on Friday night.

Two men cruised city streets with a large sign attached to the front of their car reading "Here Comes Help." They got people's cars started, rescued freezing motorists in stalled cars and drove pedestrians home or to other shelters.

From Friday through Wednesday, the Buffalo Chapter of the American Red Cross reported that five tons of food through 84 (14 in the city and 70 in the county) feeding stations had been distributed. They estimate feeding about 50,000 people to that date.

One of Buffalo's largest super market chain stores delivered 7,000 loaves of bread to emergency service agencies on 3 February. The bread was valued at over $3,000.

On 4 February, Buffalo officials announced that a general amnesty was going into effect, canceling all fees and fines for persons whose automobiles were tagged or towed away between noon Friday and midnight Wednesday. They forgave a $12 ticket placed on 2,632 abandoned cars and waived a $25 towing fee for an estimated 500 vehicles.

James Earl "Chip" Carter III, the 26 year old son of President Carter, sent on a fact finding trip to Buffalo on 4 February, said after his two-hour 35-mile whirlwind auto trip of Buffalo, Lancaster and Cheektowaga, "Just beyond conception."

Looking at the Blizzard of 77 in retrospect, one obvious conclusion that strongly shines through is the unselfishness and genuine concern people showed toward one another.

APPENDIX C

TELETYPE REPORTS, NEWS RELEASES

AND SITUATION REPORTS

APPENDIX C

Appendix C consists of examples of the three means utilized by the Corps of Engineers to channel information to the public and government offices. The Teletype Reports, News Releases, and Situation Reports described what was happening, who was doing it, and how it was getting done.

Teletype Reports (Page C-2 through C-2_3)

Throughout the entire emergency, the Corps submitted daily teletype reports to higher authority. The teletype summarized the number of contracts in effect, the estimated cost and percent complete. It also gave the number of personnel involved, as well as the number and type of equipment being utilized in the clean up operations. They also gave weather forecasts and any additional information that was pertinent at that time.

News Releases (Pages C-3 through C-3_2 and C-4 through C-4_3)

In an attempt to keep the public as informed as possible, the Corps periodically prepared and distributed News Releases. The releases gave information quite similar to the teletype reports described above.

Situation Reports (Pages C-5 and C-5_1)

Once personnel of the New York District commenced clean up operations in the two northern counties, they submitted to the Buffalo District, "Situation Reports of Snow Removal Operations in Jefferson and Lewis Counties, New York."

SAMPLE OF DAILY TELETYPE REPORTED TO OFFICE, CHIEF OF ENGINEERS AND OTHERS

JOINT MESSAGEFORM						SECURITY CLASSIFICATION: UNCLASSIFIED			
PAGE	DRAFTER OR RELEASER TIME	PRECEDENCE ACT	PRECEDENCE INFO	LMF	CLASS	CIC	FOR MESSAGE CENTER/COMMUNICATIONS CENTER ONLY	DATE – TIME	MONTH	YR
1 OF 4	032400Z	RR			UU			4	FEB	76
BOOK	MESSAGE HANDLING INSTRUCTIONS									

FROM: DISTENGR BFLO NY //NCBDP/PM//

TO: DA WASH DC //DAEN-CWO-E//

INFO: DIVENGR USAEDNC CHICAGO IL //NCDDP//
FDAA FIELD OFFICE BUFFALO NY

UNCLAS

SUBJ: SNOW EMERGENCY - WESTERN NY - REPORT NO. 5

1. STATUS AS OF 2400 HRS, 3 FEB 77:

	TOTAL	ER	NI	CAT	CH	OR	WY	GE	JE	LE
NO. REQ RECD	185	90	24	35	5	7	4	13	7	0
NO. REQ CONTR	157	80	20	29	4	2	2	13	7	0
NO. CONTRACTS	143	87	19	13	4	2	2	6	10	0
NO. CONTR. WKNG.	126	79	15	10	3	2	1	6	10	0
NO. REQ. COMP.	18	9	4	4	1	0	0	0	0	0

EQUIPMENT CONTRACTED:

SNOW BLOWERS - 12

FRONT END LOADERS - 155

DUMP TRUCKS - 181

PLOWS - 28

OTHER - 25

CORPS PERSONNEL ASSIGNED: TOTAL - 227

DISTR:

ABBREVIATIONS FOR COUNTIES

ER - Erie
NI - Niagara
CAT - Cattaraugus
CH - Chautauqua
OR - Orleans
WY - Wyoming
GE - Genesee
JE - Jefferson
LE - Lewis

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2 OF 4										
BOOK	MESSAGE HANDLING INSTRUCTIONS									

FROM:

TO:

UNCLAS

SUBJ: SNOW EMERGENCY - WESTERN NY - REPORT NO. 5

BUFFALO DISTRICT - 160

TDY - CHICAGO DIST 20
ROCK ISLAND 14
ST. PAUL 15
NEW YORK 18

ADDITIONAL TDY ASSISTANCE HAS BEEN REQUESTED AND WILL BE PROVIDED BY NCD.

2. ACTIVITY SUPPORT

A. ACTIVE ARMY ENGINEER ELEMENTS FROM FT. BRAGG 20th ENGINEER BRIGADE ON SITE WITH APPROX 320 TROOPS AND 40 PIECES OF EQUIPMENT (FE LOADERS, GRADERS, AND 5T DUMP TRKS). DISTRICT ENGINEER PROVIDING TECHNICAL GUIDANCE CONCERNING WORK AREA TO FEDERAL COORDINATING OFFICE FDAA WHO DIRECTS WORKS.

B. NY ARMY NATIONAL GUARD - LOCAL UNITS WORKING THREE AREAS IN BUFFALO CLEANING BADLY CLOGGED SIDE STREETS. ESTIMATED 40 PIECES OF EQUIPMENT WORKING. ALSO PROVIDING TRANSPORTATION OF FOOD, MATERIALS AND OTHER SERVICES REQUESTED BY NYSDOT. PROVIDING HELICOPTER SUPPORT TO FDAA.

C. MARINE CORPS RESCUE - 65 - 70 MEN FROM LOCAL RIFLE COMPANY ASSIGNED WORKING CLEARING TRACKS AND SWITCHES IN LOCAL CONRAIL SWITCH YARD.

DISTR:

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FROM:

TO:

UNCLAS

SUBJ: SNOW EMERGENCY - WESTERN NY - REPORT NO. 5

AIRFORCE LOGISTIC SUPPORT MISSIONS TO TRANSPORT TWO SNOWBLOWERS FROM COLORADO AND FIVE FIRE TRUCKS ON TEMPORARY LOAN FOR THE CITY OF BUFFALO WILL BE PROVIDED ON 2/4.

3. NEW YORK DISTRICT HAS ESTABLISHED OFFICE IN WATERTOWN AS OF TODAY. SIX PERSONNEL AIRLIFTED TO WATERTOWN TODAY AND 12 PERSONNEL ENROUTE TO WATERTOWN ARE SNOWBOUND IN SYRACUSE, NY. ADDITIONAL PERSONNEL WILL BE COMMITTED FOR EMERGENCY EFFORT IN JEFFERSON AND LEWIS COUNTIES.

4. BUFFALO DIST HIRED 185 OF REQUIREMENT FOR 200 LABORERS TO ASSIST CONRAIL WITH SWITCH CLEANING IN LOCAL YARDS. IN ADDITION, CONTRACTS FOR RENTAL OF 70 FE LOADERS, 125 DUMP TRUCKS, AND 6 DOZERS TO ASSIST CONRAIL WITH SNOW REMOVAL OPERATIONS WERE ALSO LET BY BUFFALO DISTRICT.

5. ERIE COUNTY - (NORTHERN SECTION) MOST ROADS OPEN EXCEPT FOR ROADS IN ALDEN AND LANCASTER. SNOW TODAY HAS RECLOSED MANY ROADS IN THE SOUTHERN PART OF THE COUNTY. SIDE STREETS IN CITY OF BUFFALO ARE MOSTLY CLOSED OR BARELY PASSABLE. FUHRMANN BLVD (NORTHBOUND LANE) (MAJOR ROAD LEADING INTO BUFFALO FROM SOUTH) STILL CLOSED.

6 5 4 3 2 1 0

DISTR:

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BOOK	MESSAGE HANDLING INSTRUCTIONS									

FROM:

TO:

UNCLAS

SUBJ: SNOW EMERGENCY - WESTERN NY - REPORT NO. 5

NIAGARA COUNTY - SNOW TODAY HAS CAUSED CONDITION OF ROADS TO DETERIORATE TODAY. ROADS ARE MOSTLY OPEN BUT BARELY PASSABLE.

ORLEANS COUNTY - MOST ROADS BARELY PASSABLE WITH ONE-WAY TRAFFIC IN MANY INSTANCES. CONDITIONS DETERIORATED TODAY DUE TO WIND AND SNOW.

GENESEE COUNTY - ROADS IN ENTIRE COUNTY BARELY PASSABLE. SNOW AND WIND TODAY RECLOSED SEVERAL ROADS.

WYOMING COUNTY - ALL ROADS CLOSED DUE TO WIND AND SNOW TODAY.

CHAUTAUQUA COUNTY - ROADS WITHIN 6-10 MILES OF LAKE ERIE ARE CLOSED. OTHER ROADS PASSABLE BUT IN POOR CONDITIONS.

CATTARAUGUS COUNTY - MAIN ROADS MOSTLY OPEN BUT IN POOR CONDITION. SECONDARY ROADS LARGELY IMPASSABLE.

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NEWS

CORPS OF ENGINEERS

BUFFALO DISTRICT

1776 NIAGARA STREET BUFFALO, N.Y. 14207

COLONEL DANIEL D. LUDWIG
District Engineer

THOMAS D. MALONEY
AC716 876-5454

BUFFALO, NEW YORK, February 8, 1977: Colonel Daniel D. Ludwig, district engineer, Buffalo District, US Army Corps of Engineers, today presented a summary of the massive effort by the Corps of Engineers to clear snow-clogged roads in the nine New York counties that have been declared a disaster area. The data is as follows:

	TOTAL	ER	NI	CAT	CH	OR	WY	GE	JE	LE
NO. REQ. RECD	327	180	26	38	7	7	13	16	36	4
NO. REQ. CONTR.	327	180	26	38	7	7	13	16	36	4
NO. CONTRACTS	226	92	10	22	5	5	12	11	57	12
NO. CONTR. WKNG	194	87	9	17	2	2	12	11	42	12
NO. REQ. COMP.	120	71	15	16	2	3	0	2	11	0
7 WNY COUNTIES CURRENT WORKING EST. ($ MILLIONS)	13.0	7.3	1.1	.9	.1	.3	1.5	1.7	Not avail.	
EQUIPMENT:										
SNOW BLOWERS	25	2					7	3	4	9
FE LOADERS	388	200	46	8	8	6	13	45	55	7
DUMP TRUCKS	481	292	40	11	7	2	17	16	80	16
PLOWS & DOZERS	175	89	9	28	9	1	12	20	7	0
OTHER	18	3	13					2		

(MORE)

	TOTAL	ER	NI	CAT	CH	OR	WY	GE	JE	LE	
CORPS PERSONNEL:										Ops Ctr	
BUFFALO	168	57	12	14	3	3	2	2		75	
ROCK ISLAND	10					2		8			
CHICAGO	21	18		2						1	
ST. PAUL	23	16		2		2		2		1	
DETROIT	16	11		1			4				
NEW YORK	20								18	2	
NED	1						1				
OCE	4	2	1			1					
TOTAL	263	104	13	19	3	8	7	12	18	2	77
(Military incl in above totals)	12	(3)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
CONTRACTOR PERSONNEL	2562	1346	234	128	52	22	122	194	376	88	

2. MILITARY SUPPORT: NO CHANGE, TASKS NEARLY COMPLETED, PHASED WITHDRAWAL TO INITIATE 08 FEB 77

3. COUNTY SITUATION:

A. ERIE OUTSIDE BUFFALO ALMOST ALL ROAD IN COUNTY TOTALLY OPEN. SEVERAL ROADS IN SOUTHERN ERIE COUNTY ARE ONLY ONE LANE. DRIFTING CONDITIONS CONTINUE TO FILL IN ROADS IN HIGH AREAS AND CONTRACTORS ARE UNABLE TO CONTINUE WORKING IN HIGH AREAS. BUFFALO - ALL MAIN STREETS OPEN. PRIORITY ON CLEARING BUS ROUTES (80% COMPLETE). SOME SIDE STREETS ARE BEING CLEANED.

B. NIAGARA - HARTLAND AND ROYALTON AREAS NEED MORE WORK HEAVY DRIFTING OCCURRING.

(MORE)

C. ORLEANS - MOST ROADS COMPLETELY OPEN ALL CONTRACTS SHOULD BE 100% BY 8 FEB 77.

D. GENESEE - ALL ROADS OPEN AT LEAST ONE LANE.

E. WYOMING - ALL MAIN ROADS COMPLETELY OPEN AND MOST SECONDARY ROADS ARE OPEN. DRIFTING IN OPEN AREAS CONTINUES TO CAUSE PROBLEMS.

F. CHAUTAUQUA - MOST ROADS ARE OPEN WITH TWO LANES. CITY STREETS IN POOR CONDITION. DRIFTING AND BLOWING SNO CAUSING PROBLEMS IN RURAL AREAS.

G. CATTARAUGUS - ALL ROADS PASSABLE. WORK LEFT ON SIDE ROADS. WEATHER GOOD.

H. JEFFERSON - ALL MAJOR ROADS OPEN WORK 45% COMPLETE.

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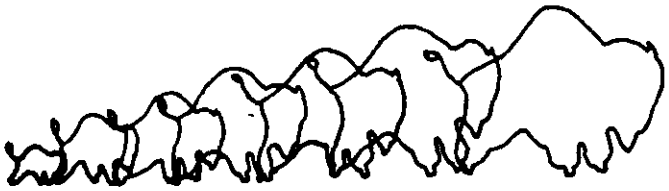

NEWS

CORPS OF ENGINEERS

BUFFALO DISTRICT

1776 NIAGARA STREET BUFFALO, N.Y. 14207

COLONEL DANIEL D. LUDWIG
District Engineer

THOMAS D. MALONEY
AC716 876-5454

BUFFALO, NEW YORK, February 14, 1977: Colonel Daniel D. Ludwig, district engineer, Buffalo District, US Army Corps of Engineers, today announced that the Corps has completed the massive job of clearing snow from over 3,000 miles of road in seven western and two northern New York counties that were declared a disaster area. The nine counties were Erie, Niagara, Chautauqua, Cattaraugus, Orleans, Genesee, Wyoming, Jefferson and Lewis. The work, which could cost as much as $13.5 million, began on Monday, January 31st and included a majority of the roads in all of the counties except Orleans, Chautauqua and Lewis, where the requests were not as great. The Corps hired private contractors to do the work through the authority of the Federal Disaster Assistance Administration. Over 2,000 contractors and 223 Corps personnel participated in the operation, including Corps personnel sent in on special assignment from St. Paul, Rock Island, Chicao, Detroit, Cleveland, New York City, Washington and Boston. The Corps provided on-the-site inspectors to supervise each contract. The work was the result of President Carter's declaration on January 29th that the counties were in a state of emergency. The same counties have since been declared a disaster area, entitling the local governments to Federal reimbursement for snow removal costs associated with the Blizzard of 1977.

(MORE)

	Total	Erie	Niagara	Cattaraugus	Chautauqua	Orleans	Wyoming	Genesee	Jefferson	Lewis	
Contracts	238	95	11	25	6	5	14	11	59	12	
No. Separate Contractors	221	111	9	22	7	6	10	11	34	11	
	$	$	$	$	$	$	$	$	$	$	
Current estimate	13,526,200	7,305,000	1,139,000	938,500	147,700	292,000	1,464,000	1,740,000	300,000	200,000	
Equipment used	13.5	7.3	1.14	.94	.15	.29	1.46	1.74	.3	.2	
Snow Blowers	24	4					7	3	3	7	
Front-end Loaders	314	178	10	13	4		22	45	29	13	
Dump Trucks	374	258	0	11	0		22	16	34	33	
Plows & Dozers	165	88	0	28	7		15	20	7	0	
Others	11	9	0					2			
Corps Personnel											Emergency Operations Center (Buffalo)
Buffalo (includes Cleveland)	131	45	9	15	4		7	1			50
Rock Island	10						4	6			
Chicago	20	14	2	4							
St. Paul	23	15		2			3	2			1
Detroit	16	11		1			4				
New York	19								17	2	
Boston	1						1				
Washington	3	2	1								
Total	223	87	12	22	4	0	19	9	17	2	51

CHAUTAUQUA AND CATTARAUGUS SUMMARY

The Corps cleared almost 300 miles of road in Chautauqua and Cattaraugus Counties at costs which could run as high as $1,000,000. In Chautauqua County, work was done in the Towns of North Hanover, Chautauqua, Sherman, Harmony, and the Village of Fredonia. Work was done in almost every town in Cattaraugus County, including Salamanca, Randolph and the Village of Gowanda.

Employees of the Corps office in Cleveland were sent in on special assignment to supervise the 29 private contractors who did the work in the two counties. The work began on February 2nd and was completed on February 12th.

NIAGARA COUNTY SUMMARY

The Corps hired nine separate contractors to clear 236 miles of road in Niagara County at a cost which could run as high as $1,100,000. Some work was done in all the towns in the county with the exception of the Town of Porter. Roads were also cleared on the Tuscarora Indian Reservation. Rural roads as well as city streets in Niagara Falls and North Tonawanda were done. Parts of Buffalo Avenue, New Road, Pine Avenue, Lewiston Road and 11th Street were cleared in the City of Niagara Falls. The Corps also assisted Conrail in removing snow from rail routes in Niagara County. The Corps effort in Niagara County began January 31st and was virtually complete on February 11th, although the assistance to Conrail will continue until February 16th.

JEFFERSON AND LEWIS COUNTY

The Corps snow removal effort in Jefferson and Lewis Counties may cost $500,000. Corps-hired contractors were at work in the City of Watertown on February 2nd and other Corps contractors began work a day later in the towns of Jefferson County. The work took place in every town in the county and was completed on February 12th. Work began on February 4th in Lewis County. The streets in the Villages of Lowville, Copenhagen, and Castorland as well as various other Lewis County roads were cleared. That work was also completed on February 12th. Corps employees from New York City were sent on special assignment to supervise the private contractors in Jefferson and Lewis Counties.

ORLEANS, GENESEE, WYOMING SUMMARY

The Corps cleared snow from over 1100 miles of road in Orleans, Genesee, and Wyoming Counties at a cost which could run as high as $3.5 million. The work in Orleans County was confined to relatively few roads but was spread throughout every town in the county. By contrast, most of the roads in every town in Genesee County were cleared by the Corps, including streets in the City of Batavia.

Also, in Wyoming County most of the roads were done. Work began on February 2nd in Orleans County and was completed on the 7th. Work began on February 2nd in Genesee County and was completed on the 12th. Work in Wyoming County began on the 3rd and was completed on the 13th.

SAMPLE OF SITUATION REPORT SUBMITTED DAILY TO THE BUFFALO DISTRICT OFFICE FROM THE WATERTOWN FIELD OFFICE

8 Feb 77

SUBJECT: Situation Report No. 4
Snow Removal Operations in Jefferson and Lewis Counties, New York

TO: Chief, Emergency Operations Br.
U. S. Army Engineer District, Buffalo

From: Watertown Field Office

1. This report reflects the action by the U. S. Army Engineer District, New York in conducting snow removal operations in Jefferson and Lewis Counties during the period 0001 - 2400 hrs, 7 February 1977.

2. The following communities and/or specific locations were completed under contracts issued by this office for snow removal:

Village of Herrings
Village of Deferiet
Village of Black River
Village of Alexandria Bay
Village of Glen Park
Village of Sackets Harbor
Village of Brownville
Village of Philadelphia
Village of Theresa
Jefferson County Vocational Center
Jefferson County Community College
Town of Wilna

3. The status of snow removal operations in the remaining communities is furnished below:

COMMUNITY	SNOW REMOVAL % COMPLETE	TIME REMAINING TO COMPLETE OPERATIONS
Village of Carthage	95	3 Days
Village of West Carthage	90	2 Days
Village of Clayton	95	2 Days
Village of Dexter	95	1 Day
Town of Brownville	70	2 Days
Town of Hounsfield	40	4 Days
Town of Henderson	75	2 Days
Village of Adams	95	1 Day
Town of Rodman	50	5 Days
Town of Lorraine	50	5 Days
Town of Ellisburg	30	4 Days
Town of Adams	40	5 Days
Village of Mansville	75	3 Days
Village of Copenhagen	25	4 Days
Village of Lowville	30	4 Days

DATE: 8 Feb 77

SUBJECT: Situation Report No. 4, Snow Removal Operations in Jefferson and Lewis Counties, New York

COMMUNITY	SNOW REMOVAL % COMPLETE	TIME REMAINING TO COMPLETE OPERATIONS
Watertown	35	7 Days
Village of Castorland	20	4 Days
Town of Rutland	60	1 Day
Town of Lyme	50	3 Days
Town of Antwerp	20	3 Days
Hamlet of Adams Center	25	3 Days
County of Lewis	50	5 Days
County of Jefferson	50	5 Days
Town of Philadelphia	30	4 Days
Town of Pamelia	35	3 Days
Town of Orleans	30	3 Days

4. The following additional information is provided:

a. Total contracts negotiated and awarded to date - 69 (Lewis County - 12 and Jefferson County - 57).

b. Personnel strength at Watertown Field Office - 19.

c. Secured two (2) snow blowers for which assistance was previously requested.

d. Griffis Air Force Base terminated use of their three (3) snow blowers in Lewis County.

WILLIAM E. TRAUBEL
Major, Corps of Engineers
Officer in Charge

APPENDIX D

MISCELLANEOUS NEWSPAPER ARTICLES

APPENDIX D

MISCELLANEOUS NEWSPAPER ARTICLES

Appendix D consists of a number of newspaper articles taken mostly from the Buffalo Evening News, the Courier Express, and the Watertown Daily Times. The following articles are intended to give some idea of the magnitude and far reaching effects the storm had on almost every person who lived within the nine affected counties.

COURIER EXPRESS - 12 Feb 77

THE WHITE HOUSE

WASHINGTON

February 9, 1977

MESSAGE FROM THE PRESIDENT TO THE PEOPLE OF BUFFALO

This has been a difficult winter for all Americans, but especially for the people of Buffalo. You have had your lives and businesses disrupted. Even the simplest daily activities have become impossible for long periods, and the number of dead and injured is still rising.

When Midge Costanza and my son Chip came back to tell me what they'd seen in your city, they told me about police and firemen who were frostbitten rescuing motorists from their stalled cars, and of the fine job Tom Casey has done coordinating federal help. "But one of the great things," Midge said, "is the sense of community, of people helping each other. That's what is holding it all together."

We as a nation have wasted too much too long, and we are having to pay for some of that waste this winter. But we are also learning that we can do better, that we need not use up what we cannot later do without, that we can do with less so that everyone may have enough.

The people of Buffalo have exemplified throughout this emergency the spirit of love and concern for their neighbors that Americans have always shown in times of trouble. You have shown the bravery and the self-discipline and the willingness to work together under difficult circumstances that have made this nation great. I'm proud of you.

Jimmy Carter

A Cheer for Uncle Sam's Boys...

BUFFALO EVENING NEWS

The federally spearheaded efforts to extricate Western New York from the effects of its crippling storm seem to be going very well under most trying circumstances.

Considering that barely six days have passed since the blizzard struck, the public should hardly be surprised that the lines of co-ordination are not always tight in some spots during an operation that involves virtually every level of government. **Based on the progress so far, however, it's fair to say that the operation being co-ordinated by Thomas R. Casey, regional director for the Federal Disaster Assistance Administration (FDAA), merits a big commendation.** Casey has been working with good humor and has shown a patient, diplomatic approach. It's a tough job, to say the least, to seek to achieve some degree of harmony among so many governmental bodies, many of which are not used to working together, least of all in a natural disaster of the dimension that hit this area.

We also would like to commend the U.S. Army Corps of Engineers, under the direction of Col. Daniel D. Ludwig, district engineer of the corps' Buffalo District, for the way it has handled its chores, particularly the actual contracting with private firms to clear the snow-plugged streets and highways, under the FDAA's authorization.

County Executive Edward V. Regan struck a chord when he commented about the way the herculean effort was launched: "My God, for governmental agencies, that's pretty good." The executive added: "It's still a disaster, but we're coping with it."

Meanwhile, we were delighted to learn, in an announcement by Casey, that some $3-million in emergency CETA (Comprehensive Employment and Training Act) funds which had been earmarked by the Labor Dept. to help New York and five other states dig out from the massive storm will instead go to the seven counties of Western New York which are now officially in a federal state of emergency. Buffalo will receive at least $200,000.

On the whole, the Buffalo area recovery effort is proceeding well. The colossal task, however, will take time, and the patience of all of us doubtless will be taxed to the utmost. Again, we express thanks that the federal agencies got here so quickly to get the over-all effort moving.

HOORAY FOR THE HELPING HANDS!

Corps Personnel Praised for Work During Emergency

Amid all the complaints about the post-blizzard clean-up, one Erie County building contractor had high praise for the Buffalo office of the Corps of Engineers.

"Nobody has complimented the Corps of Engineers personnel who did a fine job during the snow emergency," said Richard E. Forresiel, president of the Cold Spring Construction Co. of Akron.

"Corps personnel worked 24 hours a day, seven days a week during the emergency. We think they did a splendid job for the public in getting the snow removed."

Cold Spring equipment was used to remove snow from the Towns of Newstead in Erie County and Orangeville and Middlebury in Wyoming County.

BUFFALO EVENING NEWS - 15 Apr 77

U. S. Corps Lists $6 Million in Contractor Payments for Blizzard Cleanup

By PAUL MacCLENNAN

Half of the $6 million paid out by the U. S. Corps of Engineers to dig out snow-clogged roads went to contractors working in Erie County.

The Buffalo District today released the amounts paid to individual contractors for work in six Western New York counties and two in Northern New York that were declared disaster areas.

The money represents only a part of the total snow-clearing costs because in the later stages of the cleanup operation individual communities took over the job and will be reimbursed by federal disaster aid.

Of the $6,053,356 paid to contractors, $1,253,729 went for work in southern Erie County, $330,211 went for work in northern Erie County and $968,704 went for work in Buffalo.

Contractors were paid $321,857 for work in Cattaraugus and Chautauqua counties; $459,349 for work in Genesee and Wyoming Counties and $717,099 for snow removal in Niagara County.

Another $1,401,613 went for work in Jefferson and Lewis Counties in Northern New York.

Northern Demolition Inc. of West Seneca topped a list of 17 contractors each of whom received in excess of $100,000. The company was paid $299,054 for work in southern Erie County.

Work in that area also resulted in payments of $148,858 to Sno-Go Plowing of Orchard Park and $145,867 went to ABC Paving Inc. of West Seneca.

In northern Erie County, top dollar was paid to Caradori Construction Inc. of Lancaster, $180,093; Cold Spring Construction of Akron, $125,232, and William W. Kimmins of Kenmore, $114,342.

Top contractors in Buffalo are Lebis Enterprises of 261 Massachusetts, $148,853; Intercity Transportation Inc., $123,265, and Niro Construction Co. Inc., 951 Niagara St., $116,797.

In Niagara County, Lake City Corp. of North Tonawanda was paid $262,294, and Scrufari Construction Inc. of Niagara Falls received $151,540. Potter-Dewitt Corp. of Pavillion was paid $224,880 for work in Genesee County.

The individual amounts paid to contractors and the areas in which the work was performed is as follows:

BUFFALO

Auto City, 393 Bailey, $2660.
Ben's Service, 87 Hamburg, $4550.
Carl A. Boncore, 423 Hinman, $65.
Boyd & Brown Construction & Development Corp., 280 Guilford, $20,750.
Sam Butera, 1345 Niagara, $975.
Cemillini Concrete Construction Inc., 587 Northland, $4446.
Ciocce Construction Co., 706 Richmond, $2360.
Cohn Construction Co., 545 Elmwood, $11,950.
Erie Auto Parts, Inc., 1055 William, $2075.
Freeway Contracting, Inc., 68 Churchill, $57,100.
Frontier Contractors Equipment, Inc., 3890 Sheridan Dr., Amherst, $30,520.
Frontier Trucking Service, Inc., 489 Walden, $29,116.
John Gross Plumbing, 2104 Niagara, $70,443.
Hauck's Collision, 267 Cherry, $6040.
Johnnie High Jr., 43 Florida, $2475.
Hinman Rental Service, 234 Hinman, $10,932.
Inter-city Transportation, Inc., 158 Jefferson, $123,265.
JL&R Construction, 61 Cantwell, $24,244.
Janik Paving, Inc., 598 Benzinger, $55,112.
K&T Pump & Tank Co., 277 Dearborn, $240.
LRL Transportation Service, Inc., 61 Cantwell, $50,078.
Lebis Enterprises, 261 Massachusetts, $148,853.
John LoBuglio, 242 Hopkins, $18,260.
Nationwide Collision, 977 Niagara, $952.
Niro Construction Co., Inc., 951 Niagara, $116,797.
Occino Towing, Inc., 451 Vermont, $1710.
James A. Parrish, J.P. Amoco, 2939 Bailey, $270.
Quality Construction Corp., 240 Sheridan, $20,545.
James Reed Trucking, 101 Rohr, $12,644.
Richardson's Trucking, 97 Victoria, $4793.
Rigger Construction, 1312 College, $3711.
Sloan Auto Parts, 90 Hopkins, $2237.
Surfaniello General Contractors, Inc., 635 Wyoming, $54,351.
Tuta Construction Co., 284 Hinman, $7216.
Herman Williams, 16 Dupont, $1712.
Williams Paving Co., 100 Katherine, $35,670.
Wrecking Corp. of America, 2130 Fillmore, $3810.

NORTHERN ERIE COUNTY

Adam Paving Co., Tonawanda, $8580.
Bognar Brothers, Tonawanda, $4690.
Boettrager Contractors, Alden, $3315.
CMH Company, Williamsville, $47,058.
Caradori Construction, Lancaster, $180,093.
Cold Spring Construction, Akron, $125,232.
Ciocce Contracting Co., Depew, $32,632.
County Line Stone Co. Inc., Akron, $47,037.
Ecol Construction System Inc., Lancaster, $367.
Erie Excavating Co., Tonawanda, $31,674.
GHB Enterprises Inc., Lancaster, $9109.
Greenauer Blacktop Co., Cheektowaga, $3316.
Ferry Concrete Construction, Depew, $20,208.
Fornasiero Brothers, Inc., Eggertsville, $4550.
William W. Kimmins, Kenmore, $114,342.
Lancaster Stone Products Corp., Williamsville, $65,910.
Dennis J. Laughlin, Town of Tonawanda, $23,921.
Long's Landscaping, Grand Island, $3500.
F. Maggio Builders Co., Williamsville, $30,282.
Manannisca, Inc., Blasdell, $15,930.
Marine Materials Handling Corp., Cheektowaga, $1917.
Wayne Maslowsky, Tonawanda, $8016.
Park-Edge Acres, Inc., Tonawanda, $19,255.
Raymar's Trucking, Inc., Cheektowaga, $252.
Robinson and Long, Tonawanda, $13,221.
Schreiber Hauling Co., Cheektowaga, $375.
Michael C. Serafini, Inc., Cheektowaga, $25,482.
Don Vacanti, Grand Island, $1599.
W. M. Walker Builders, East Amherst, $5256.
Walts' Tree Service, Lancaster, $84,534.
Western Construction Co., $5185.

SOUTHERN ERIE COUNTY

ABC Paving, West Seneca, $145,867.
Amadori Construction Co., Lackawanna, $5104.
Fred Blakeslee, Hamburg, $3347.
Furlone's Trucking & Produce, Inc., North Collins, $15,909.
Dan Gernatt Gravel Products Inc., Collins, $25,801.
Hearne Door Co., West Seneca, $1000.
Hen-Gar Construction Corp., North Collins, $79,070.
Holmes & Murphy, Orchard Park, $67,398.
K & R Day Trucking, Inc., West Seneca, $26,424.
T. E. McNamara Trucking, Elma, $16,336.
Mecca Brothers, North Collins, $20,472.
Northern Demolition, Inc., West Seneca, $299,054.
Oakgrove Construction, Inc., Elma, $26,210.
Ed O'Rourke, Lakeview, $5580.
Procknal and Kaiza Trucking and Demolition, Blasdell $64,610.
Reiger Construction Co., West Seneca $10,697.
William Rogers, Eden, $5260.
Rogers Trucking, Eden, $7180.
Sno-Go Plowing, Orchard Park, $149,358.
Southern Erie Construction, Inc., Colden, $8931.
Terra Marine Dredging, Gowanda, $31,847.
Tri-Delta Aggregates, Orchard Park, $94,510.
Union Concrete and Construction, West Seneca, $57,361.
R. L. Vogel Inc., West Seneca, $20,194.
L. C. Whitford Co., Springville, $38,780.
Winters Railroad Service, North Collins, $47,737.
H. G. Wittmeyer & Son Trucking Inc., $10,775.

NIAGARA COUNTY

Thomas E. Carter Trucking, Cambria, $22,922.
Crown Auto Parts, Niagara Falls, $2690.
Frontier Stone Inc., $14,905.
John Gross Plumbing & Heating, Niagara Falls, $70,443.
Haseley Trucking Co. Inc., Ransomville, $59,554.
Lake City Corp., North Tonawanda, $262,294.
McClendon Blacktop Inc., Niagara Falls, $28,287.
Mulligan Contracting Co., Lockport, $40,322.
Quality Construction, Olcott, $20,545.
Scrufari Construction Co., Niagara Falls, $151,540.
Truesdell Trucking, Ransomville, $42,264.
Dick Wasik Sales Inc., Lockport, $2970.

CATTARAUGUS, CHAUTAUQUA

Simon Barnes, Limestone, $7102.
Benz Construction Corp., Silver Creek, $11,437.
Ray Burgin Truck Co., Brockton, $32,810.
Cassadaga Gravel, Fredonia, $4070.
J. P. Corneli Contracting, Olean, $6637.
James Cowles, Jamestown, $1536.
Lonnie Crosby, Salamanca, $4730.
Elsert Construction Co., Olean, $66,470.
Don Frame Trucking, Fredonia, $35,769.
Charles Giaroini, Allegany, $8968.
Hanover Sand & Gravel, Hanover, $880.
Conrad & Victor Mighells, Randolph, $10,449.
Orazio Auto Wrecking, Silver Creek, $2270.
James Patti Excavating, Inc., Jamestown, $19,219.
Floyd Proctor Enterprises, Inc., Jamestown, $48,497.
Reed & Tegler, Inc., Otto, $5665.
Bentley Russell, Inc., Franklinville, $15,840.
Works & Silvia Company, Inc., Allegany, $10,497.

GENESEE, WYOMING

Darrell-Freeman Jr., Inc., Byron, $7130.
Potter-Dewitt Corp., Pavilion, $224,880.
Vito Gauthier Construction, Batavia, $24,014.
R&W Trucking & Excavating, Elba, $39,552.
Soccio & Della Penna Corp., Batavia, $36,681.
Western New York Concrete, Batavia, $42,761.
Hilliard Clark, Gainesville, $33,750.

Thirty private contractors were called in from places as far away as Colorado and Quebec to help the Corps clean up.

Some with special equipment were flown in by Air Force cargo planes and others drove equipment to the area.

The outside contractors are:

Joseph A. Abraham Enterprises, Rochester, $142,659.
Bakers of Jerico Hill, Alfred, $28,651.
B. Beard Jr. Trucking, West Newbury, Mass., $63,672.
John Beemer Co., Dalton, Pa., $37,867.
Brockport Sand & Gravel, Brockport, $29,905.
Eugene W. Cerone, Schenectady, $2100.
Chemung County Highway Department, $8100.
Cipriano Brothers, Mt. Morris, $18,595.
Roger Coil Excavating, Lisle, Ill., $15,175.
Frank Dimino, Rochester, $184,302.
Dolomite Products Construction, Rochester, $14,583.
Gordon Hakes, Painted Post, $120,604.
Hyland Fance Company, Inc., Victor, $1300.
Militia Construction Co., Inc., Rochester, $22,863.
George P. Mills, West Peterson, N.J., $3960.
Morris Development, Castleton, $10,093.
Richard Piche Inc., Cap Sante, Quebec, Canada, $21,513.
RVA Trucking, Rochester, $241,825.
D.E. Richardson & Sons, Retsof, $19,140.
S&H Contractors, Springfield, Mass., $1665.
Saratoga Springs, City of Commissioner of Public Works, $1890.
L. M. Sessler Excavating Co., Waterloo, $32,625.
Smithtown, Town of Long Island, $28,830.
Snowflake Enterprises, Steamboat Springs, Colo., $6004.
Tenneckey Brothers, Amsterdam, $2160.
J. G. Turner, Victor, $10,772.
John P. Unouse Truck Co., Carteret, N.J., $25,440.
J. J. Urban Inc., Fora N.J., $56,775.
C. P. Ward Inc., Rochester, $144,000.
L. C. Whitford Co., Inc., Wellsville, $78,382.

Blizzard of '77 Cost WNY $297.8 Million, C of C Analysis Finds

BUFFALO EVENING NEWS - 13 Apr 77

By PETER SIMON

The net economic loss to the Western New York area as a result of the Blizzard of 1977 and the subsequent natural gas curtailment was $297,870,000, according to an economic analysis released Tuesday by the Buffalo Area Chamber of Commerce.

The report was based on questionnaires completed by more than 300 firm members of the Chamber.

The survey covered "all economic sectors" except agriculture, self-employed persons, professionals and government establishments, according to Kurt P. Alverson, the Chamber's director of research and marketing, and Kathleen Hess, assistant director.

"Quite clearly the largest economic loss as a result of the storm resulted from the inability of area business and industry to produce or open for business," the analysis said.

The gross loss in this category is about $285 million, but much of that loss is recoverable and the net loss is estimated at about $154 million.

In addition, the report says, the blizzard "on the average interrupted business transactions for an average of 5.6 days and affected some 175,700 persons who lost payroll in the amount of $36,250,000."

"A $25,300,000 loss to physical structure and equipment has been reported as a result of the storm damage," the analysis adds. "In addition, $5.5 million has been estimated as additional losses to stock and equipment during that period.

"Little if any of this dollar amount, totaling some $30.8 million, will be covered by insurance, according to respondents."

The total net loss attributed directly to the blizzard is $221,490,000, the report states.

A loss of another $76,380,000 is blamed on the subsequent natural gas curtailment.

Manufacturing, wholesale and retail trade sectors were hit hardest by the curtailment, the report says, "with only minor disruptions being reported in any other category."

About 29 per cent of the respondents reported that the curtailment had a "serious" or "very serious" effect on their operations. The percentage was nearly 40 per cent in the manufacturing field.

COURIER EXPRESS - 13 Apr 77

$297-Million Price Tag On the Big Blizzard of '77

By RAY DEARLOVE
Courier-Express Staff Reporter

A price tag of $297,870,000 was put on Erie and Niagara Counties for the Blizzard of '77 by the Buffalo Area Chamber of Commerce on Tuesday.

A Chamber analysis for the two-county area revealed that of the total, a $221,490,000 loss resulted from the effects of the blizzard over a 5.6-day period beginning Jan. 28. A $76,380,000 loss was the result of subsequent natural gas curtailments.

Press Informed

The report was prepared by Kurt P. Alverson, director of research and marketing of the Chamber, and Ms. Kathleen Hess, assistant director. It was aired at a press conference Tuesday afternoon in the Chamber Bldg., 238 Main St.

Included in the survey were all economic sectors except for agriculture, professionals, self-employed and governmental operations. The report was segmented into two main categories of losses — the effects of the blizzard, and the effects of the natural gas curtailments.

Losses were further distinguished in terms of damage to physical structures, stock and equipment, as well as loss of production or operating time and payroll of employes not otherwise reimbursed during the close of business.

175,000 Persons Affected

"The blizzard interrupted normal business operations for an average of 5.6 days and affected about 175,000 persons who lost wages totaling about $36,250,000," said Alverson. "The largest loss of wages occurred in the manufacturing sector, while the largest number of employes affected by the storm was in the wholesale and retail trade categories."

Alverson said losses totaling $25,300,000 in physical structures and equipment were reported by study participants. He said that in addition, $5.5 million in estimated losses were reported for stock and equipment, mainly as a result of lack of insurance coverage.

Economic Disaster

"The largest economic loss occurred because of the inability of area business and industry to operate on normal schedules," said Alverson. "Projections amount to $285,550,000, with approximately 54.1 per cent termed nonrecoverable during this calendar year.

"Net loss because of inability to operate normally amounts to an estimated $154,421,000. The total economic loss caused by the Blizzard of '77 has been set at $221,490,000," Alverson said.

According to the survey, the economic losses because of the natural gas curtailments of $76,380,000, included $8.4 million in payroll to 10,000 employes. The greatest effects were in the manufacturing, wholesale and retail trade sectors.

Fuel Dependency Data

"Losses reported because of the natural gas curtailment comprise 25.6 per cent of the total losses from both the blizzard and fuel shortage," said Alverson. "About 40 per cent of manufacturers felt the gas curtailment hardship reached serious proportions, while the rest of the economic sectors indicated varying degrees of difficulty."

Alverson said 80 per cent of survey participants rely upon natural gas in some form for heating, processing or both. He said 18.6 per cent indicated they have two sources of fuel capability, while 81.4 per cent rely on a single fuel.

"The vast majority of dual-fuel firms are in the manufacturing sector," said Alverson. "Of those without such capability, 44.9 per cent indicated they could develop alternative sources but felt such a step to be far too costly at present."

This is a day-by-day record of the major events of the Buffalo area's blizzard of the century.

By MIKE HEALY

Wednesday Jan. 26

Western New York battles to clear winter's record snowfall from roads. Buffalo's side streets are snow-clogged, and a snow blitz is under way.

But at 10:30 that night, snow squalls and high winds hit Wyoming, Cattaraugus and Allegany counties. Then Erie County is hit.

By midnight winds of up to 40 miles per hour have made visibility zero in many places, and the Buffalo Skyway, Fuhrmann Blvd. and the "Father Baker Bridges are closed.

More snow is predicted by the National Weather Service.

Thursday Jan. 27

During the night, scores of motorists are stranded on Fuhrmann Blvd. and are rescued before dawn by police and fire fighters.

All Western New York counties are hard pressed by the storm, particularly Erie, Niagara and Genesee. Gov. Hugh L. Carey orders National Guard and Dept. of Transportation snowfighting equipment into Buffalo.

"It looks like we're finally going to be able to beat the worst of it," says Mayor Stanley M. Makowski.

More snow is predicted.

Friday Jan. 28

A severe blizzard hits Western New York, with 45-mile per hour winds, gusting to 70 m.p.h., a great density of snow in the air, near-zero visibility and temperatures hovering below 10 degrees.

Thousands are stranded in office buildings, schools, police stations, fire halls and factories.

Seven people are found dead in their cars and thousands more abandon autos trapped in the snow.

Nearly all transportation in and out of Buffalo comes to a halt, with most major highways officially closed or virtually impassable, train lines blocked, and the Buffalo International Airport closed.

Fifty persons are left homeless by a fire that breaks out on Whitney Place, most fire-fighting equipment is unable to reach the scene because of the snow.

The whole area is paralyzed and the storm roars through the night.

Saturday Jan. 29

The weather does not let up. The Federal government issues a "declaration of emergency" for Erie, Niagara, Chautauqua and Cattaraugus counties, which permits the government to move into the area and provide whatever materials and equipment are necessary to restore the area to normalcy.

Relief efforts by the Red Cross and Salvation Army broaden, and thousands of the stranded are fed.

The storm has a crippling effect on both Buffalo newspapers. The Courier-Express does not publish a paper for the first time in its history, and the Buffalo Evening News publishes only 10,000 copies of its edition.

Sporadic looting of businesses and abandoned cars begins.

Sunday Jan. 30

Vicious cold and winds continue, as Gov. Hugh Carey visits Buffalo, and says Western New York should qualify as a "major disaster area."

Thomas Casey, northeast regional administrator of the Federal Disaster Assistance Administration arrives to take over snow-removal operations.

Looting increases, and 59 suspects are arraigned in Buffalo city court.

Snowmobilers, CB radio operators and volunteer firemen deliver emergency food and medical supplies in suburban areas. The Red Cross works on food distribution to community centers in Buffalo, and puts out an urgent appeal for blood.

Fuel-oil deliveries to many homes are impossible because of clogged residential streets. Service stations have trouble getting gasoline.

Three reindeer elope from the Buffalo Zoo and are recaptured.

Monday Jan. 31

Arctic weather goes on and on, with many main roads in the area still closed, all schools shut down, and a large part of the area work force stuck at home.

Business and industry are at a standstill, although most supermarkets remain open. However, they are having difficulties getting food from their warehouses.

Reports of price gouging on food increases.

Thomas Casey predicts that it will take days to mobilize disaster efforts in the four designated Western New York counties, and "two weeks at the outside before things return to normal."

More National Guardsmen are called up, swelling the number working on the disaster to over 500.

Many rural areas are still isolated by the snow.

Tuesday Feb. 1

The sun shines in, but the problems hang on.

The first estimates of the cost of the storm to the Buffalo area economy are made: over $60 million.

Mayor Makowski attempts to call President Jimmy Carter to ask for financial assistance and is told by a White House aide to deal with Thomas Casey.

A lack of coordination between federal, state and local governments and charity agencies is reported, and the disaster effort is said to be in total confusion.

And Mayor Makowski declares a "state of emergency" in the city, prohibiting the use of vehicles for "non esential purposes" on all city streets.

The number of alleged looters arrested in Buffalo rises to over 100, and profiteering by tow-truck drivers is reported.

Wednesday Feb. 2

The picture looks a little brighter as the driving ban allows snow-removal crews to go about their work unimpeded, the weather improves slightly and coordination of disaster relief services seems to be straightening out.

Erie County Executive Edward V. Regan tours the hardest hit sections of his county in a jeep and is amazed by "the enormity of this thing."

Niagara County Executive Kenneth K. Comerford estimates storm-incurred damage in his county at over $6 million and rising rapidly.

Mail deliveries resume for the first time since the storm hit on Friday.

Late Wednesday, Mayor Makowski lifts the ban on driving on city streets.

Thursday Feb. 3

Private cars jam Buffalo streets, as high winds and snow squalls cause zero visibility in much of the area once again.

Snow-removal efforts come to a standstill, and Mayor Makowski reimposes the driving ban as of 12:01 Friday morning.

The mayor concludes his announcement with a prayer for a "miracle" to help the city recover from the winter's onslaught.

Friday Feb. 4

President Carter's son Chip tours Buffalo, Lancaster and Cheektowaga, and describes what he saw as "just unbelieveable."

U.S. Sens. Jacob K. Javits and Daniel P. Moynihan also arrive, and both vow to push for the area to be designated a major disaster area.

The National Weather service predicts another blizzard over the weekend.

Friday night, Rep. Henry J. Nowak announces that President Carter will declare Western New York a major disaster area.

Saturday Feb. 5

President Carter makes the disaster designation, which includes Erie, Niagara, Cattaraugus, Chautauqua, Genesee, Wyoming and Orleans counties in Western New York, and Lewis and Jefferson counties in the Watertown area. The designation provides for a wide range of relief, including direct grants to communities to pay snow removal costs.

The expected blizzard misses Western New York.

Sunday Feb. 6

Mayor Makowski announces that the driving ban will stay in effect through Monday.

Cleanup efforts continue, and Buffalo institutes a watchdog unit to make sure that private contractors hired during the storm emergency are getting the job done.

Most major roads in Western New York are reported as passable, finally, but side streets everywhere are still clogged.

The roof of a hanger at the Buffalo Air Park in West Seneca collapses due to heavy snow, damaging numerous private planes.

Monday Feb. 7

Mayor Makowski lifts the driving ban, but restricts traffic to vehicles carrying at least three people.

Other rules included in the announcement are a citywide speed limit of 20 m.p.h. and a prohibition on parking on bus routes.

Local and federal officials talk optimistically about snow-removal progress. Public transportation in and out of Buffalo returns to normal.

But in the town of Concord, 25 miles south of Buffalo, at least 100 people are still trapped in their homes by the snow.

And the National Weather Service chief meteorologist in this area announces he is taking early retirement, calling this severe winter "the last straw."

However, the Weather Service predicts milder weather for the week.

Tuesday Feb. 8

The Buffalo Common Council votes to spend $300,000 to hire three construction firms to supervise snow removal operations in the city.

No major traffic problems are reported in the wake of lifting Buffalo's driving ban.

Some persons are having problems finding their cars. Over 3,500 autos were towed away during the blizzard.

The Small Business Administration offers low interest loans to business and homeowners in the area who suffered damage or business losses during the storm.

Wednesday Feb. 9

Estimates of the cost of clearing all Buffalo streets of snow range up to $15 million.

Mayor Makowski lifts the three-in-a-car driving rule for the hours between 7 p.m. and 6 a.m.

And the temperature at Greater Buffalo International Airport reaches 32 degrees for the first time in 45 days, ending the record cold spell.

Thursday, February 10

THE TEMPERATURE reaches 38, a heat-wave in comparison to what went before.

Mayor Makowski decides to accept the loan of two sophisticated snow melters from Toronto to help with the cleanup.

And the Buffalo zoo's director announces that the zoo lost 23 animals during the blizzard. Total damage to the zoo from the storm is put at $420,000.

Friday, February 11

THE TEMPERATURES continue to climb, into the '40's, the enormous piles of snow shrink, and the National Weather Service announces that a flash flood watch is in effect through Saturday, due to the melting snow.

Mayor Makowski lifts the driving ban as of noon, but the 20 mile per hour speed limit and ban on parking on bus routes remains in effect.

Saturday, February 12

THE COURIER-EXPRESS publishes a special section on the blizzard of the century, a permanent record of what we've been through and how we did it.

Death Toll In Storm 23

The "Great Blizzard of 1977" took a heavy toll of lives in Western New York with a total of 23 storm-related deaths reported.

Erie County in general and the City of Buffalo in particular were the hardest hit.

According to statistics provided by the Erie County Medical Examiner's office there were 18 storm-related deaths in the county beginning with the blizzard on Jan. 28. Eleven of the 18 deaths were in the City of Buffalo.

Elsewhere, the storm claimed three lives in Wyoming County, one in Niagara County and one in Orleans County.

BUFFALO EVENING NEWS - 11 Feb 77

Thousands of Cars Lost In City Towing Tangle

By RICHARD HAYNES

The city has lost track of literally thousands of cars that were towed away during the snow emergency.

They weren't necessarily stolen.

"Just misplaced," said Detective Robert Pulkownik of the Auto Squad. "I think some of these cars are going to be lost until August, when the snow melts," he quipped.

Charles L. Michaux Jr., chief of the Parking Violations Bureau, has been given the job of finding the cars and leading their owners to them.

* * *

"SOMEHOW THIS has been thrust on my shoulders," he said. "Because I'm the guy who can take the brickbats and slings."

Out of more than 400 people who called the Parking Violations Bureau Wednesday looking for their cars, the bureau knew the location of only 72.

Can't Find Car? Here's Help

The Parking Violations Bureau will be open through the week-end from 8:30 AM to 4:30 PM not for paying fines but to try to help people find their towed-away cars. For information call 856-4330.

The cars got lost because of what Detective Pulkownik calls the "helter-skelter type of operation" instituted at the height of the snow emergency to clear the streets of stalled and abandoned autos.

The city and the U. S. Corps of Engineers contracted with 61 different garages to tow cars away. Other cars were removed by police wreckers or by National Guard troops.

* * *

BUT IN THE haste to get the job done, the city didn't establish any uniform procedures for reporting where the cars were towed.

In a barren room on the second floor of the Parking Violations Bureau building, 42 Delaware Ave., young staffers are trying to decipher the scribbles and scrawls of many of the tow-truck operators.

The Cox & Holtz Towing Co., for example, sent the bureau one sheet of paper that said: "Peace Bridge Center, 50; Kleinhans Music Hall, 86; Fargo & North; Prospect; Holy Angels Church, 20 . . ."

Apparently that means they towed 50 cars to the Peace Bridge Center, 86 to Kleinhans, an undetermined number to Fargo and North, and so forth.

On other pieces of paper, Cox & Holtz has listed the nearly 200 autos it towed. But again, there's no matching with the lots.

* * *

MR. MICHAUX tried calling Cox & Holtz, but they're not in the telephone book.

"Somebody's going to have to go out to these lots and inventory all the cars in them," Mr. Michaux said.

There are plenty of other problems. Some tow-truck operators listed the locations of the towed autos as simply "Twin Fair," without saying which Twin Fair branch, or "South Park," without indicating the park itself or some spot on the five-mile-long avenue.

Others made mistakes on their lists and tried correcting them by drawing arrows all over the sheet, which bureau staffers can't figure out.

One Texaco station owner neglected to mention which Texaco station it is that he owns. There are 48 in the area.

* * *

AS THE 61 contract garages get around to it, they are sending in tow lists along with their bills for the towing. As of Thursday afternoon, the bureau knew about 4400 autos that had been towed and had a bill for $119,447.

Mr. Michaux also worries about auto theft and vandalism.

It seems a lot of people can't find 1976 and 1977 model cars, especially the expensive models.

"When you've got a list that says a guy's 1977 El Dorado is behind the Aud. and he goes there and it's not . . . what can you think?" said one.

WATERTOWN, NY, DAILY TIMES - 9 Feb 77

336.3 Inches at Sears Pond

Observers Fear Rapid Melting; Record Snow Depths Measured

If the heavy snow cover now on the ground melts gradually — good.

But if the melting comes with a rush — watch out for severe flooding.

The depth of snow and its water content are at record high levels for this time of the year throughout the 2,000 square miles of the Black River basin which embraces Jefferson, Lewis, Oneida, Hamilton and Herkimer counties.

The average depth of snow in the river's drainage system is 40.4 inches, 16 inches above normal. And the water content averages 8.06 inches, 3.5 inches above normal.

Sears Pond, 20 miles southeast of Watertown in the Tug Hill plateau, has the most snow — 77.3 inches on the level and contains 19.23 inches of water. The weather observer at that station has measured 336.3 inches of snow, from Oct. 10 to date. The record in the state is 355 inches for the total winter season at Stillwater, back in 1971. As of Feb. 1, Stillwater's snowfall totaled 203.5 inches to exceed all previous records at the comparative date.

In the City of Watertown, the snow cover Monday totaled 31.7 inches with a water content of 6.63 inches.

"The elements for severe flooding are there," said Kenneth H. Mayhew, assistant chief engineer for the Hudson-Black River Regulating District as he cited snow and water content figures for the Black River drainage region.

"If a winter thaw comes, and it is long overdue, look out for severe flooding," he warned. "If we get warm spells coupled with rains, the combination would trigger all kinds of flood problems — inundating cellars and roads, ice jams and caved-in roofs. If there is a slow and gradual thaw, we will be okay. An instant thaw will mean trouble."

Mr. Mayhew said a continuation of this winter's pattern of abnormal cold weather would postpone the flood threat until April or May. Should March and April produce warm days and cool nights (maple syrup weather), it would help alleviate the potential springtime flood condition, he added.

The snow on the ground is of "exceptional" light texture and neither does it have any crust because of the absence of warm days this winter.

The National Oceanic and Atmospheric Administration (NOAA) is closely watching the high flood potential from melting snow in the basin that drains into Lakes Ontario and Erie.

Traditionally, flooding is the worst in the lowlands of Lewis county, particularly from Carthage to Lyons Falls. Mr. Mayhew said the latest bad flood was in 1969, developing in May from heavy rains and not the melting of snow.

BUFFALO EVENING NEWS - 10 Feb 77

U.S. Assures City of Snow Funds

Officials Confirm Payment for 'Actual Expenses'

By MIKE McKEATING

Federal disaster officials today denied reports published this morning that the city might get stuck with a bill which could climb to $15 million as a result of contracting with three private firms to supervise the remainder of the snow cleanup.

"The city will be reimbursed for all actual expenses," a spokesman for the Federal Disaster Assistance Administration (FDAA) said today after checking the report with superiors.

"I don't know where they got the estimate of $15 million," he said. "We don't know how much it will cost.

"But the party line is that all actual expenses will be reimbursed under the formula of the Federal Disaster Act."

* * *

THAT FORMULA was published in The Buffalo Evening News Tuesday.

It calls for the federal government and the localities to share the cost of snow removal that exceeds the budget amount by up to 100 per cent on a 70 per cent federal-30 per cent local basis.

After the extraordinary snow-removal costs due to the storm exceed the budgeted amount by more than 100 per cent, the federal government pays all of the excess.

In other words, if a city had budgeted $1 million for snow-removal and exceeded that amount by $2 million due to the storm, the federal governemnt would pay $1.7 million of the excess and the city would absorb $300,000.

* * *

THE CITY of Buffalo Tuesday awarded a $270,000 contract to three of the area's largest contractors, Siegfried Construction Co., John W. Cowper Co. and Stimm Associates, to supervise the remainder of the snow removal.

Working in a joint venture, the three will operate out of an around-the-clock command post in the basement of Memorial Auditorium and hire as many subcontractors as they need.

The contract calls for them to do whatever is necessary to clear every street in the city from curb to curb.

Meanwhile, in Albany state legislative leaders said today the state may be required to pay a sizeable portion of the disaster aid bill for Western New York.

Sen. James T. McFarland (R., Town of Tonawanda) said many categories of federal aid require 25 per cent matching state funds.

* * *

"IT'S TOO early to get an accurate figure, but I assume the funds will have to be appropriated in this year's supplemental budget," Sen. McFarland said.

For example, the nine Democratic assemblymen representing Erie County urged Gov. Carey to apply for a category of federal aid that would provide grants of up to $5000 for senior citizens, the unemployed or welfare recipients whose homes were damaged in the storm.

But the grant program requires 25 per cent matching state funds.

WATERTOWN, NY DAILY TIMES - 8 Feb 77

$294,000 City Tab For Snow Removal

City Manager Ronald G. Forbes said the city's snow removal costs between Jan. 16, the effective date of the disaster declaration for Jefferson and Lewis counties, and Feb. 12, when the Army Corps of Engineers is expected to end its aid, will total about $294,000.

The city manager told the city council Monday night his estimate of costs is necessarily an approximation and does not consider storm damage to street pavement, but he observed that the four-week total exceeds the entire 1976-77 snow removal budget of $227,533.

Mr. Forbes praised the efficiency of the Army engineers in locating and dispatching snow removal equipment and personnel.

He was less than enthusiastic about the Federal Disaster Assistance Administration (FDAA), however, calling the relief agency "very indefinite" about amounts, percentages or criteria for storm-related costs for which the city may be entitled to reimbursement.

He said when the Army Engineers leave the scene Saturday the city would have to hire private snow removal contractors by itself and then seek reimbursement from FDAA, and "you know how the federal government is about reimbursement."

At the council's formal session Mr. Forbes went out of his way to praise the efforts of the Department of Public Works during the storm.

"I think they did an outstanding job. They really got this community opened up," he said. "I did not want this week to pass by without public acknowledgement of their noble work."

WARSAW, NY, WESTERN NEW YORKER - 8 Feb 77

STORM PROBLEMS

Looting in Wyoming County

ARMY ENGINEERS SEND HELP

LIVINGSTON PROVIDES SNOW PLOWS

Federal Disaster Status

Resulting from a Western New York Tour by Chip Carter and Midge Costanza, Wyoming County has become part of the 9 counties in the area to be given federal disaster status by President Jimmy Carter. Carter issued the disaster proclamation after urging by local legislators, governmental officials and a joint effort of U.S. Senators Daniel Patrick Moynihan and Jacob Javits.

Following is a list of federal aid provided under President Carter's disaster declaration:

—Localities that spent up to twice what they had budgeted for snow removal and street repairs will receive direct federal grants covering up to 70 per cent of the excess.

—Localities that spend more than twice what had been budgeted for snow removal and street repair are eligible for the 70 per cent aid, plus up to 100 per cent aid for the costs that exceed 200 per cent of the budgets.

—Individuals put out of work by the snowstorms who are not covered by current state and federal unemployment insurance programs will receive unemployment payments from the federal government. (This does not apply to those out of work because their place of employment did not have sufficient natural gas supplies.)

—Grants for the repair of public facilities damaged by disasters. The federal government may provide up to 100 per cent for public buildings damaged.

—Direct grants up to $5,000 a family to help persons meet extraordinary disaster-related damage and expenses not covered by the Disaster Relief Act of 1974.

—Professional counseling at federal expense for persons who suffered mental stress because of a disaster.

—The President can make loans to local governments that suffered substantial revenue losses because of disasters. These low-interest loans are limited to 25 per cent of the local government's operating budget.

—The President can forgive these loans if the locality's revenues are inadequate to meet operating costs during the three years immediately following the disaster.

—The Federal Disaster Assistance Administration can provide temporary monetary assistance to homeowners and tenants who, because of the storm, cannot meet rent or mortgage payments and face eviction or loss of their house.

—The Disaster Relief Act also includes a fine of $10,000, a one-year prison term or both for persons who willfully make fradulent claims under the act.

Low income families and those interested in information on storm emergency benefits under the federal proclamation may call 796-8500. This includes provisions for emergency removal of snow for health or home hazard, emergency deliveries of food, fuel, or medicine and emergency transportation.

The Federal Disaster Assistance Administration has set up a toll free number for disaster victims to use in securing help and benefits under the proclamation. The number is 1-800-462-1062.

The Army Corps of Engineers are currently increasing the hiring of local and out of town contractors to work on opening the roads in Wyoming County. Loaders, graders, dump trucks, and snowblowers are operating in virtually every township. Hard hit by the blizzard, Towns of Attica, Bennington, Orangeville, Sheldon, Warsaw and Wethersfield already have outside equipment on the job. Under the emergency status the county has hired snow removal crews from Chemung, Livingston, and Yates counties to help in a massive clean-up push.

ROCHESTER, NY, DEMOCRAT & CHRONICLE - 7 Feb 77

Contractors recruited

Snow removal swamps Corps

The Army Corps of Engineers has more experience with floods than with blizzards, but it's been recruiting private contractors to remove snow in seven Western New York counties since a state of emergency was declared more than a week ago.

Work has been finished in 72 of 291 areas that asked for help, Thomas Maloney, public information officer, said last night.

About 127 contractors have earned about $3 million so far, he said. By the time all the jobs are completed, the federal government will have paid them about $12.3 million, according to Maloney.

The state of emergency made the counties eligible for help from the Federal ter Assistance Administration (for- the Office of Emergency Preparedness), he said. The administration called on the Corps to help clean up after last week's blizzard.

The Corps stopped getting requests for aid after President Jimmy Carter declared nine Upstate New York counties (including two in Northern New York) disaster areas on Saturday.

The towns in a major disaster area can contract for the work themselves and bill the federal government for it, Maloney said.

He said the corps has hired contractors to work in Genesee, Wyoming, Orleans, Chautauqua, Cattaraugus, Erie and Niagara counties.

Snowplows, dump trucks, front-end loaders and other pieces of heavy equipment are clearing roads in all the towns that have asked for help except Castile and Attica in Wyoming County, he said. Those towns will have to wait until crews are available.

This is the first time the Buffalo Corps office has been involved in snow removal, Maloney said. It uses private contractors on its flood control and drainage projects and so has experience with local contractors.

The going rate for the equipment and an operator is about $60 to $70 per hour, Maloney said.

The Corps gets its assignments from the state Department of Transportation (DOT), he said.

"The DOT is giving us the jobs as they get the requests in from the counties and the towns, saying the work is beyond their capabilities," he said. "With 25-foot snowdrifts, the towns don't have the capacity to handle it."

BUFFALO COURIER EXPRESS - 7 Feb 77

Genesee's Storm Loss $3.7 Million

By BOB McJURY
Courier-Express Batavia Bureau

BATAVIA — With Genesee County's storm-related costs estimated at $3.7 million, Legislature Chairman Russell E. Gillett said Sunday that "we really appreciate the President's recognition of the situation in Genesee County."

"We have completed much of the preliminary work in applying for the federal aid," Gillett said. "We have lots of the cost figures already compiled."

Barring another storm, Gillett figures the county will be pretty well cleaned up in a week, and the estimate includes costs to be incurred this week. Snow removal accounts for $2.5 million of the estimate, he said.

As an example of overtime costs for employes fighting the storms, Gillett pointed to his own Town of Byron, where the payroll for the two weeks of the storm period ran $7,500 for four regular employes and two others recruited for snowplowing work.

"Some of these men worked 20 out of 24 hours some days," he pointed out.

Fire officials estimate that the county's volunteer fire companies spent over $21,000 aiding victims of the storm.

Over half this amount was for food. The Town of Batavia Fire Dept. spent over $4,000, the largest food bill, feeding nearly 1,000 people who sought shelter at its fire hall during the storm.

Genesee County Fire Coordinator Wilbur Henz said most of the balance was spent for gasoline, oil and equipment repairs. "We are seeking federal grants to reimburse the fire departments," Henz declared.

David Weaver, cooperative extension specialist, urged farmers to keep accurate records of their storm-related losses.

Officials indicated that low interest loans will be made available to the farmers.

Milk production losses may be as high as 20 per cent of gross annual sales, officials said. Farmers Home Administration loans will be available on physical losses not covered by insurance or available from other creditors, George Allhusen, management extension specialist, said.

He recommended that records be kept on milk dumped or used but not shipped, building damages, animals lost and loss in milk production due to cold weather, availability of feed or other storm related causes.

Cows that have gone without grain because of feed shortages should be brought back to full ration gradually, the extension officials said. Animals can be brought back more rapidly if the grain is mixed with silage or haylage, he added.

Weaver said livestock farmers should regulate ventilation during periods of great temperature fluctuations.

"Damp barns are bad for buildings and cow health," he said. "Cows need fresh air and can tolerate colder temperature than we can."

He also recommended a check of roofs for ice and snow. Ice more than one foot deep and snow more than four feet deep may cause roofs to collapse. This has happened in at least one case in the county, Weaver added.

BUFFALO COURIER EXPRESS - 6 Feb 77

Carter Orders Disaster Aid for WNY

Millions in U.S. Funds To Cover Storm Costs

By DAVID E. LYNCH
Courier-Express Washington Bureau

WASHINGTON — Nine counties of the state, including seven in Western New York, were declared a major national disaster on Saturday, qualifying them for millions of dollars in federal aid.

The declaration, the first ever as a result of snow damage, covers Erie, Niagaga, Cattaraugus, Chautauqua, Genesee, Wyoming and Orleans Counties in Western New York.

It also covers Lewis and Jefferson Counties in the Watertown area, which was hit with much of the same snow and wind storms that struck Western New York.

President Jimmy Carter signed the declaration shortly before noon at the White House.

The basic relief provided by the declaration includes direct federal grants to help communities pay snow removal and road maintenance costs.

Provides Pay for Jobless

The federal government will also provide unemployment insurance payments for those put out of work by the storms that began on Jan. 16.

The Federal Disaster Assistance Administration (FDAA), which is coordinating the federal effort, emphasized that this unemployment insurance will not be provided for those who were put out of work because of the natural gas shortage.

The President's declaration makes no mention and provides no assistance to individuals or industries affected by the energy shortage.

Under the Disaster Relief Act of 1974, the affected areas are eligible for numerous federal loans and grants to help repair and rebuild property and businesses damaged by the storms.

Not Required Aid

The law makes this assistance discretionary. It doesn't say the federal government "must" provide this aid, it says it "may" provide it.

An FDAA spokesman here said on Saturday that the federal government "is not closing the door" oh any of this eligibility. He said this will be worked out later.

The immediate concern is to help pay the snow removal costs and unemployment insurance, he said.

In his declaration, Carter said: "The FDAA Administrator (Thomas P. Dunne) will keep the President advised of the requirements for additional forms of assistance."

Casey Coordinator

Thomas R. Casey, director of FDAA region II, was designated

BUFFALO COURIER EXPRESS - 6 Feb 77

Carter Orders Aid For Storm-hit WNY

★ From Page A-1

as the federal coordinating officer to work with the state in providing federal disaster assistance. Casey was already in the Buffalo area coordinating federal snow removal efforts.

The federal government will pay up to 70 per cent of the snow removal and road repair costs that exceed the local government's budget for those costs by up to 100 per cent.

It will also pay all of those costs that exceed 200 per cent of the amount the locality budgeted for snow removal and road repair.

Retroactive to Jan. 16

This declaration pertains to all costs and storm - related unemployment beginning on Jan. 16, when a series of snow storms and blizzards first hit the area.

Gov. Hugh L. Carey officially requested President Carter to declare Buffalo a major national disaster and a federal emergency for Erie, Niagara, Cattaraugus and Chautauqua Counties on Jan. 28.

The President responded the next day by declaring all of New York and Pennsylvania a federal emergency.

The FDAA then designated the four Western New York counties a federal emergency and dispatched Casey into the area.

Had Given Aid

That designation allowed the federal government to aid Western New York in snow removal, but did not allow for the financial assistance the disaster designation will.

Casey at the time was authorized to use any federal agency, including the military, to help save lives and protect property.

This operation involved hundreds of soldiers, airlifts of men and snow removal equipment into the area as well as contracts with private construction companies to help clear the streets.

Covers Most Expenses

FDA officials in Buffalo and Washington said on Saturday that under the disaster designation virtually all of the expense of the emergency operation will be covered by the federal government.

It was not known at the time what portion, if any, would be paid for by the local or state government.

President Carter also designated 11 counties in Michigan as a federal emergency on Saturday. These counties have snow and wind problems similar to those in New York.

Corps 'War Room' Directs Roads Army

By PAUL MacCLENNAN

The U. S. Corps of Engineers conference center has become a war room. Its walls are lined with maps of the battle plan and its communications center is attuned to an army in the field.

The war isn't against a human enemy, but the battle goes on around the clock as the Corps supervises front-line troops slogging out Western New York's snow obliterated highways and byways.

Its maps show the road network and its charts, the priorities, contracts and status of the work under way since Monday.

Its communications — mostly telephone and two-way radio — link the command center at 1776 Niagara St. with more than 100 inspectors in the field.

Its army is the more than 50 big contractors, dozens of pieces of equipment and hundreds of men the Corps has hired to fight the drifts that immobilized the area.

Despite its emergency mobilization, the headquarters is replete with a lot of human, non-military touches.

Blankets and pillows are piled behind a supervisor's desk. In another room, people who are working 12 hours on, 12 hours off are sleeping. A weary woman struggles with an out-sized sleeping bag.

* * *

IN THE lobby, the piles of bags grow higher as the Corps calls in personnel from all over the district: Rock Island, St. Paul, Chicago, Cleveland. One man brought his snowshoes.

The first Corps people were on the job Friday as the snow and weather problems mounted. Col. Byron Walker worked throughout the week-end.

As the first signs of disaster mounted Sunday, Henry Vitale, the district's emergency operations planner, was "rescued" from his Orchard Park home by snowmobile and brought to work.

Twenty-four hours after it was ordered to begin contracting for snow removal, the Corps had its first crew on the road — one working South Park Ave. from the city line Downtown.

Now it has 50 contractors working in the nine counties designated as disaster areas — Erie, Niagara, Chautauqua, Cattaraugus, Genesee, Wyoming, Orleans and two in the upstate area, Jefferson and Lewis.

Mr. Vitale said there is no way of knowing when the job will be done. Maybe a week, he said, as the State Transportation Department dropped a new list of city streets on his desk.

* * *

A CONTRACTOR called in to say the job was barely moving because the drifts literally exceeded the capacity of his equipment.

Speed has meant shortcuts. Contractors, for example, are hired on a verbal basis and once the rates are negotiated, the paperwork is left until later.

Every time you see one of those big rigs working or a truck hauling snow, figure $60 to $75 an hour — and sometimes they are lined up five deep, standing still. That's what irks some of the Corps people. All was going well while the driving ban was on, they say, but once it was lifted, the equipment became subject to long delays.

To insure contract compliance, each job is assigned two Corpsmen to supervise, inspect and be sure the government is getting its money's worth.

The war room was just catching up Thursday new orders came in — hire laborers for Conrail to dig out the railroad switches.

ANOTHER TASK force set to work contacting state unemployment offices and setting up the machinery to hire workers.

County Executive Regan ruffled a few feathers Wednesday when he walked in and complained that the Corps wasn't moving fast enough to clear roads in the county. Employes say that hurt and they made no bones about it.

The bill for it all? Col. Walker frankly admits they have no idea what it will run. "It may run a million dollars. It may run more. But the Federal Disaster Administration picks up the bills."

Beyond it all, Col. Daniel K. Ludwig sits and while directing the blitz worries about spring and where all the melted snow will go. Nobody's saying, but in disaster terms, the winter's storm could be a picnic.

COURIER EXPRESS - 22 May 77

We salute
the memory of
CARL REESE
who gave his life serving
people in our community.

Police Officer Reese died at 38 after working without rest to help victims of the January 28th blizzard. We're sure you join us in saluting the memory of Carl Reese as an outstanding representative of the many public servants whose concern for protecting and aiding people goes far beyond the call of duty.

APPENDIX E

CORPS PERSONNEL PARTICIPATING IN EMERGENCY ASSISTANCE ACTIVITIES - OPERATION SNOW GO 1977

APPENDIX E

Introduction

The following is a list of U. S. Army Corps of Engineers personnel who participated in Operation Snow Go. Some worked many, many hours, some just a few, some worked in the bitter cold storm, some in the office, some came to help from hundreds of miles away, some from only down the street. But the important thing is that everyone worked hard, physically gave all they had, and tried to help their fellow person in any way they could.

A big thank you from the thousands of recipients goes out to the Regular Army, National Guard, Marines, Police at all levels, Firemen, Salvation Army, Red Cross, CBers, Federal, State, County, Town and Village officials and employees and most of all to the people who actually moved the snow, to the thousands of municipal highway crews and private Contractors who worked day and night under unbelievable conditions. Also, to the volunteers who helped in so many ways, by offering their 4-wheel vehicles, snowmobiles, citizen band radios, running missions of mercy, offering their homes and places of business as shelters and so many more too numerous to mention.

Total Corps Personnel

Buffalo District Personnel	256
Temporary Duty Personnel (TDY)	97
Chicago District	22
Detroit District	16
New England Division	1
New York District	21
Office Chief Engrs. (OCE)	4
Rock Island District	10
St. Paul District	23
Total	353

Buffalo District Personnel

Automatic Data Processing	9
Cleveland Resident Office	7
Construction-Operations Div.	79
Engineering Division	92
Executive Office & Special Assistants	6
Office of Administrative Services	26
Office of Comptroller	8
Office of Counsel	3
Personnel	8
Procurement and Supply Div.	9
Program Development	6
Public Affairs Office	3
Total	256

Construction-Operations

1. Regina I. Armstrong
2. William W. Baum
3. James R. Brade
4. Stewart C. Bush
5. Leslie E. Chambers
6. Rolando M. Collini
7. Michael S. Cowle
8. Arthur Cratchan
9. Andrew J. Dodges
10. Patrick E. Doherty
11. Joseph L. Fecio
12. Robert F. Fillinger
13. Curtis E. Fitzpatrick
14. Walter O. Fray
15. Paul F. Gaume
16. Leroy F. Geary
17. Arthur W. Gilmore
18. Robert G. Gorski
19. Gerald E. Greener
20. Michael J. Gruber
21. Leland H. Hair
22. David W. Henderson
23. Marianne Homen
24. William J. Hoyles
25. John F. Ilenich
26. Joseph J. Jarnot
27. David R. Kaplan
28. Arthur F. Klein
29. Richard A. Korpanty
30. Edward J. Korwek
31. Jonathan L. Koszuta
32. John H. Kysor
33. Jack LaFountain
34. Charles Lampman
35. Paul F. Leuchner
36. Dorthea A. Manning
37. Arthur K. Marks
38. R. Joseph Marmo
39. Arthur P. Marshall
40. James M. Moulder
42. Frederick R. Mueller
43. Placido Nazzari
44. William Nelson
45. James N. Pabody
46. Thomas F. Papsidero
47. Raymond L. Pilon
48. Michael Pryor
49. Joan Rall
50. James Reinhardt
51. Herbert D. Rhodes
52. James I. Richardson
53. James H. Richman
54. Warren Rimer
55. Sidney S. Russell
56. Ronald A. Schunk
57. James L. Simons
58. Howard Simonsen
59. Myles F. Sinnott
60. John S. Spitalik
61. Edmund J. Statkum
62. James J. Stephens
63. Doren E. Stubbs
64. Duane Syph
65. Edward C. Volmer
66. James F. Wagner
67. Henry W. Walters III
68. James E. Ware
69. Richard W. Wasner
70. Richard M. Weatherly
71. Robert W. Weber
72. William Werick
73. Robert G. Wilcox
74. Findley J. Wilson
75. David D. Witmer
76. James E. Wheeler
77. Ronald P. Wohlert
78. Yvonne M. Woods
79. Charles P. Zernentsch

Engineering Division

1. Ambrose J. Andre
2. John S. Annony
3. Charles L. Baldi
4. Roman E. Bartz
5. James M. Bennett
6. Philip E. Berkeley
7. David G. Bingert
8. Marilyn P. Booth
9. Walter Borys Jr.
10. George B. Brooks
11. Leonard F. Bryniarski
12. Denton R. Clark Jr.
13. Diane M. Clements
14. Edward J. Conboy Jr.
15. Angelo F. Coniglio
16. Ellen M. Cummings
17. Carl R. Czora
18. Donna M. Davis
19. John C. Drake
20. Anthony R. Eelman
21. William P. Erdle
22. Joseph N. Erhart
23. Joseph A. Foley
24. Gary M. Franc
25. Gary R. Frankish
26. Albert T. Fulco
27. Stanley T. Gardon Jr.
28. John A. Gerlach
29. Charles E. Gilbert
30. Stephen J. Golyski
31. Richard J. Gorecki
32. Ronald J. Guido
33. Edward J. Gustek Jr.
34. Kenneth R. Hallock
35. Mary Hamilton
36. Joseph Hassey
37. Frank J. Henry
38. Melvin L. Hill
39. Dennis W. Janicki
40. Robert C. Johnston
41. Jerold D. Jurentkuff
42. James W. Karsten
43. Daniel T. Kelly
44. James W. Kluss
45. John A. Koller
46. Albert Kopel
47. Christine Kosinski
48. Leonard R. Kotkiewicz
49. Dolores C. Kurek
50. Joseph A. Kurek Jr.
51. Peter J. Kuszczak
52. Paul V. Lang
53. Donald L. Lawson
54. Carl A. Liber
55. Donald M. Liddell
56. Frederick J. Lombardo
57. Cpt. William Lucas
58. Salvatore A. Maiore
59. Paula T. Markham
60. David A. Melfi
61. Charles B. Mierek
62. Vincent Montante
63. Maj. Donald R. Nance
64. John J. Nash
65. Robert J. Nicaise Sr.
66. Salvatore V. Nobile
67. Michael S. Pelone
68. Andrew P. Piacente
69. Thomas J. Pieczynski
70. William Pippine
71. Joan Pope
72. Arthur F. Redenbach
73. Irvine G. Reinig
74. David H. Saunders
75. Lawrence J. Sherman
76. Thomas P. Sloan
77. Sandra J. Smaldino
78. Todd Smith
79. Irving Stone
80. William F. Sweet Jr.
81. Brian M. Troyer
82. Steven A. Tucker
83. James C. Urbelis
84. Teofilo D. Valerio
85. Thomas R. Vogt
86. Robert W. Wade
87. Thomas A. Wilkinson
88. William A. Worden
89. Stephen M. Yaksich
90. Kesavaro Yalamanchili
91. William A. Zoeller
92. John Zorich

Procurement and Supply Division

1. Sharon R. Aikin
2. Joseph Bank
3. Moira A. Fox
4. Donald E. Hutcheson
5. John Lystad
6. Roderic R. Madore
7. Robert R. Ostwald
8. Mary E. Socie
9. William L. Thompson

Office of Comptroller

1. Jerome R. Bower
2. Rosemary Casper
3. Clyde H. DeTamble
4. Anna Marie Gerace
5. Ronald J. Lonca
6. Jerome E. Poplawski
7. Patricia L. Sadler
8. Frieda E. Weishaupt

Office of Counsel

1. Robert G. Gargiulo
2. Clara F. Migdalski
3. H. Frank Parson

Program Development

1. Angus W. Chisholm
2. Kenneth D. Harack
3. Leonard M. Henry
4. Thaddeus C. Klosko
5. John E. Kumor
6. Adele L. Marek

Automatic Data Processing

1. Paula Brown
2. Leonard M. Calabro
3. Cheryl L. Davidson
4. Marcia DeBose
5. Peter R. Fleckenstein
6. Shirley Greene
7. Michele Kiner
8. John J. Rynkewicz
9. Janet L. Smith

Personnel

1. Frederick W. Brill
2. Jaroslaw Chudy
3. Katherine E. Garoutte
4. Jean M. Harber
5. Phyllis F. Kardas
6. Thomas E. Neumeister
7. Sandra J. Pascucci
8. Pamela J. Reinig

Public Affairs Office

1. H. Ross Fredenburg II
2. Sharon D. Gorenflo
3. Thomas D. Maloney

Executive Office & Special Assistants

1. Donald E. Borkowski
2. Josephine L. Fichera
3. Charles J. Foye
4. Col. Daniel D. Ludwig
5. Henry A. Vitale
6. Ltc. Byron G. Walker

Office of Administrative Services

1. Emilie J. Banks
2. Barbara M. Bickelman
3. Wilbert W. Binga
4. Robert J. Bostwick
5. Maurice K. Brown
6. Robert G. Brown
7. Linda E. Calvert
8. Eugene Chertock
9. Linda A. Cottrell
10. Myrle W. Dell Jr.
11. Robert E. Finnegan
12. Thomas N. Fridmann
13. Margaret M. Friedman
14. Russell J. Germaine Jr.
15. Metro Homenda
16. Barbara Kelleher
17. Shirley M. Kessler
18. George W. Key
19. Robert L. Kwiatkowski
20. Peter Lucuk Jr.
21. Helen K. McVitty
22. Harold A. Sokody
23. Freda T. Soper
24. Lillian J. Stryczek
25. Wodea Tony
26. Michael C. Vanderlip

Chicago District

1. Donald L. Boice
2. Denis J. Campbell
3. Jay C. Chandler
4. James F. Dunn
5. Ltc. Melvin Farrar
6. Chet R. Follansbee
7. John T. Griebler
8. Craig H. Knauss
9. Michael D. Lee
10. Morris T. Lenz
11. John A. Montella Jr.
12. Norman R. Niedergang
13. Darrel G. Pederson
14. Albert J. Remar
15. Ernest C. Sauerman
16. Kenneth H. Simpson
17. Richard C. Traver
18. Leon B. Turner
19. Robert F. Warda
20. Edward B. Wegman Jr.
21. Norman J. Weseloh Jr.
22. Bob L. Yager

Cleveland Resident Office

1. Helen H. Annandale
2. Carl W. Artrip
3. Daniel E. Coverstone
4. Clark E. Dahlman
5. Leslie A. Glancy
6. Paul J. Metzler
7. John K. Vogel

Detroit District

1. Cpt. William L. Allen
2. Edward G. Argalas
3. Gayle J. Brown
4. Thaddeus J. Cieslak
5. Richard R. Davidson
6. George D. Fitzhugh
7. John F. Flanigan
8. Stephen Gordey
9. Bernie E. Jacobs
10. Roy J. Jameson
11. Victor L. Kotwicki Jr.
12. Robert N. Linton
13. Frank J. Sarginson
14. Howard J. Smith
15. Thomas C. Wartella
16. Samuel H. Webb

New York District

1. Jack Arnoff
2. Cpt. Wilbur Boutin
3. Paul Cheverie
4. Kay Dougall
5. Louis Fioto
6. Brett Gorham
7. John Gray
8. John Hartmann
9. Steve Hopkins
10. Cpt. Edward Hughes
11. Wing Lo
12. Kevin Mahon
13. John Mennillo
14. Pierino Paoloni
15. Robert Piviretto
16. Roberto Ramirez
17. Jerry Schneiderman
18. Maj. William Traubel
19. Mark Urbaneck
20. Ray Weidman
21. Frederick Wilson

St. Paul District

1. John G. Ahlborg
2. Duane W. Andler
3. Jon R. Andregg
4. Michael E. Bartholomay
5. Clarence F. Beauvais
6. Leeland F. Burrows
7. A. Joanne Catherman
8. David A. Danielson
9. David J. Duellman
10. Glen J. Duren
11. Gary G. Hazelton
12. Gary L. Hessing
13. Harold E. Heule
14. James R. Krumm
15. Frederick A. Lenten
16. Marsha A. McTamaney
17. Arnold G. Mervin
18. Dean J. Peterson
19. Edward G. Sing
20. William M. Stocker
21. Arne B. Thomsen
22. David A. Valen
23. William R. Wolfe

New England Division

1. Maj. Robert Hando

Office Chief of Engineers

1. Cpt. David R. Clark
2. Cpt. Marvin K. Foust
3. Cpt. Thomas M. Kane
4. Cpt. Gene K. Underwood

Rock Island District

1. Edward J. Barlean
2. Stanley C. Buckholtz
3. Keith R. Fulton
4. Donald E. Haden
5. Dale E. Hickel
6. George W. Kensinger Jr.
7. Lane B. Mathena
8. Cpt. David F. Stevens
9. Thomas C. Stilwell
10. Michael W. Tampir

Other Military Participation

1. 152nd Eng. Btln. N.Y. State National Guard
2. 221st Engineer Group NYNG
3. 42nd Aviation Battalion
4. 27th Combat Engineer Battalion of the 20th Airborne Engineer Brigade, Ft. Bragg, NC
5. U.S. Air Force Units
6. N.Y. Air National Guard Units
7. 1st Btl., 25th Marine, Co.D, 4th Marine Div.
8. 12th Marine Amphibious Brigade, Camp LeJeune, NC
9. Marine Aircraft Group - 20
10. Support Troops from First Army Headquarters
11. Naval Reserve Units
12. As well as many other Military units.

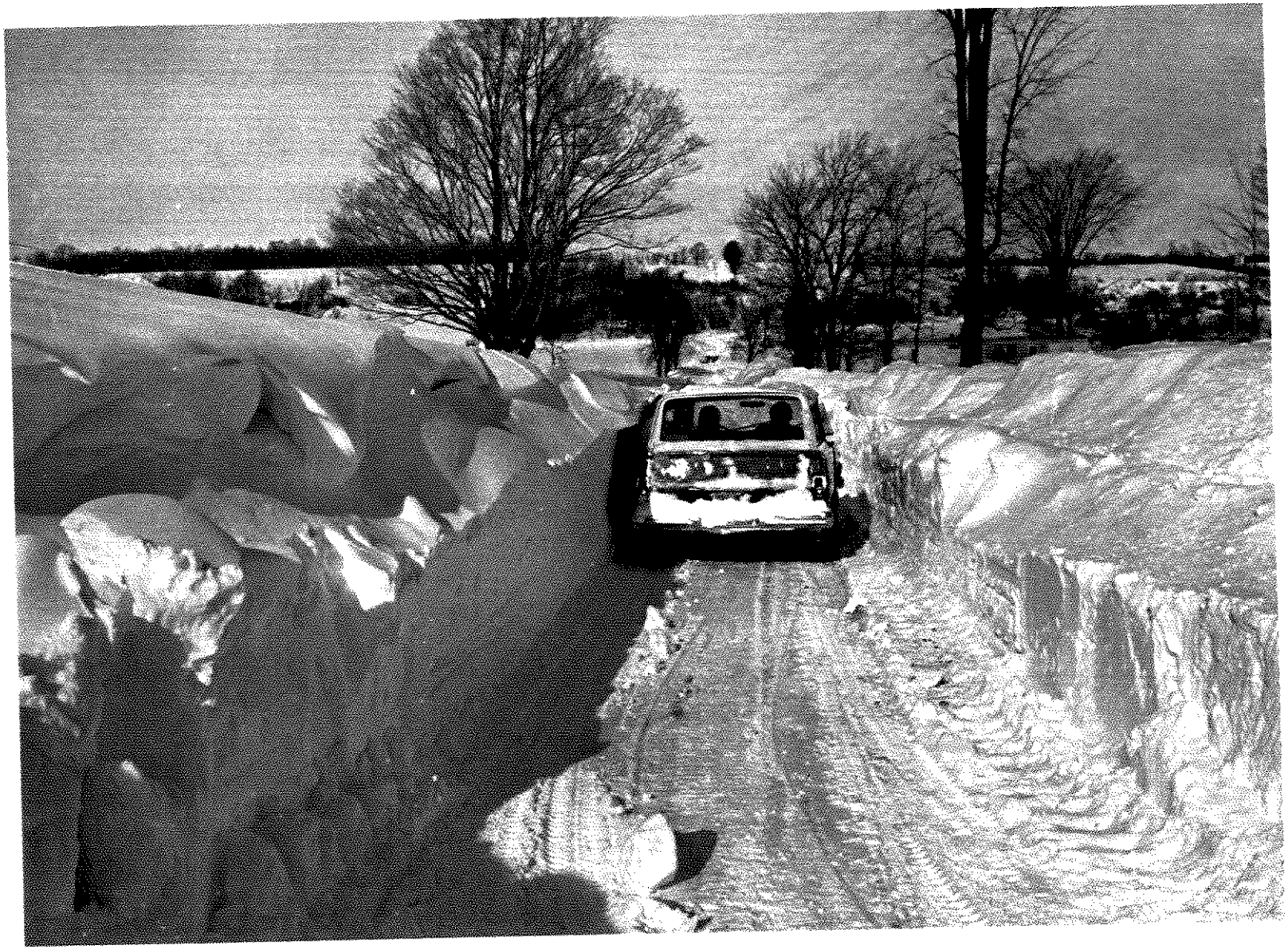

Photo 41 - One-lane traffic, a very common problem for many days after the storm. In an attempt to open as many roads as possible, as quickly as possible, plow crews would continue heading in one direction plowing roads wide enough to accommodate only one vehicle at a time. (2/77 D.O.T.)